

THE FINANCIAL

Analysts Journal

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MAY-JUNE 1960

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IN OUR JULY-AUGUST ISSUE

Growth of Commerce on the Columbia River and its financial significance, by Oregon's Ivan Bloch. Part II of Nicholas Molodovsky's Method of Valuation and Pricing. Also, a summary of the Proceedings of the 13th Annual Convention of The National Federation of Financial Analysts Societies.

1961 1969
1961 1962
1963 1963
1963 1964
1965

**tomorrow's
numbers
today**

General Telephone & Electronics works with more than telephone numbers.

For example, we continually study the numbers of new people, new communities, and new business enterprises that will need telephone service five to ten years hence.

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This is a typical example of how General Telephone & Electronics is preparing today to meet the challenge of tomorrow's expanding economy.

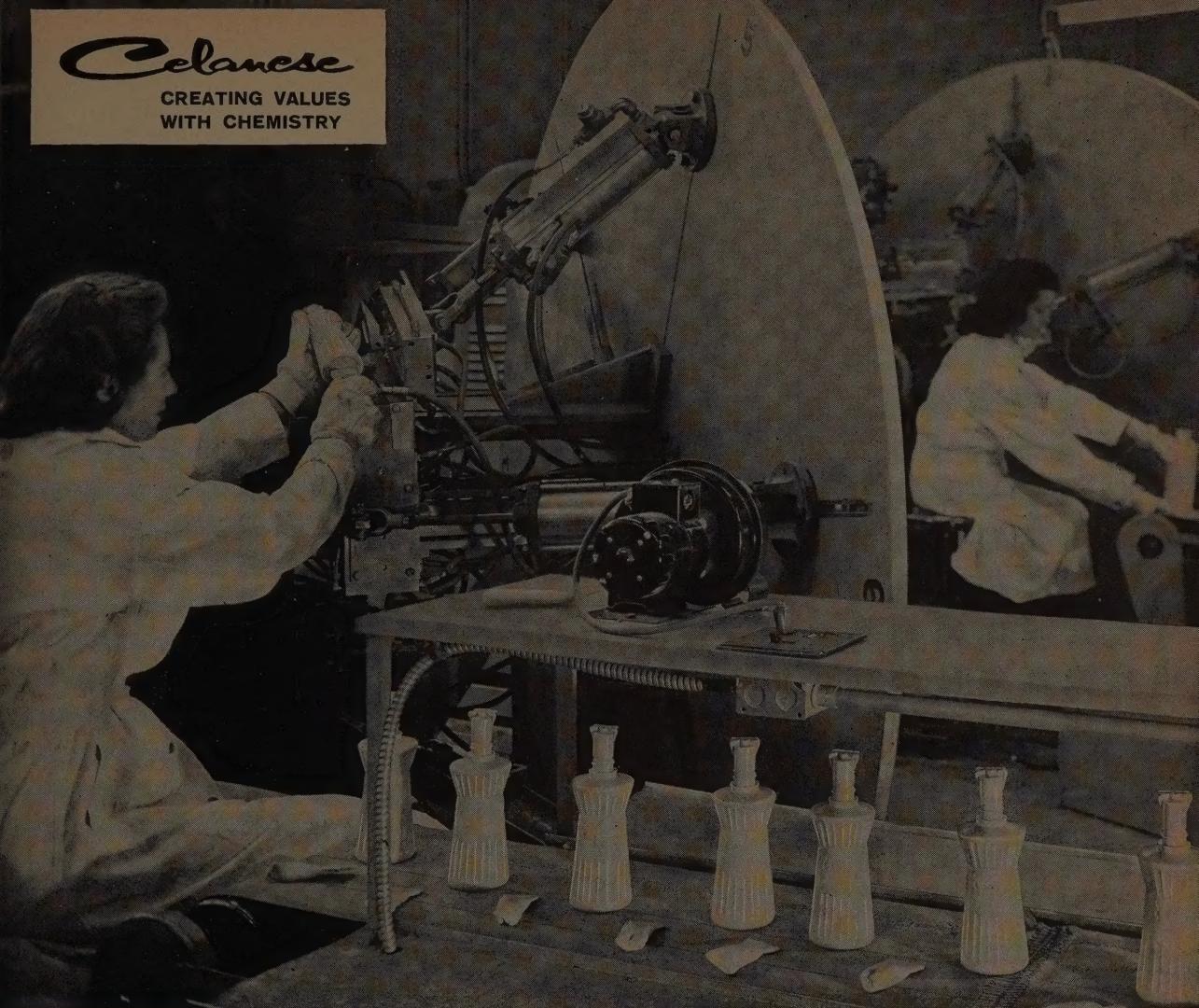
**GENERAL
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Celanese

CREATING VALUES
WITH CHEMISTRY



CELANESE TO MASS-PRODUCE BLOW-MOLDED PLASTIC BOTTLES

Celanese has acquired the facilities of the Royal Manufacturing Company, a large producer of blow-molded products, and as a result has become a major factor in the production of plastic bottles and containers.

Immediate expansion is planned for plants in Illinois and Arizona. New operations will be established at Trenton, New Jersey, this year. The market potential for blow-molded containers is estimated at several billion units yearly.

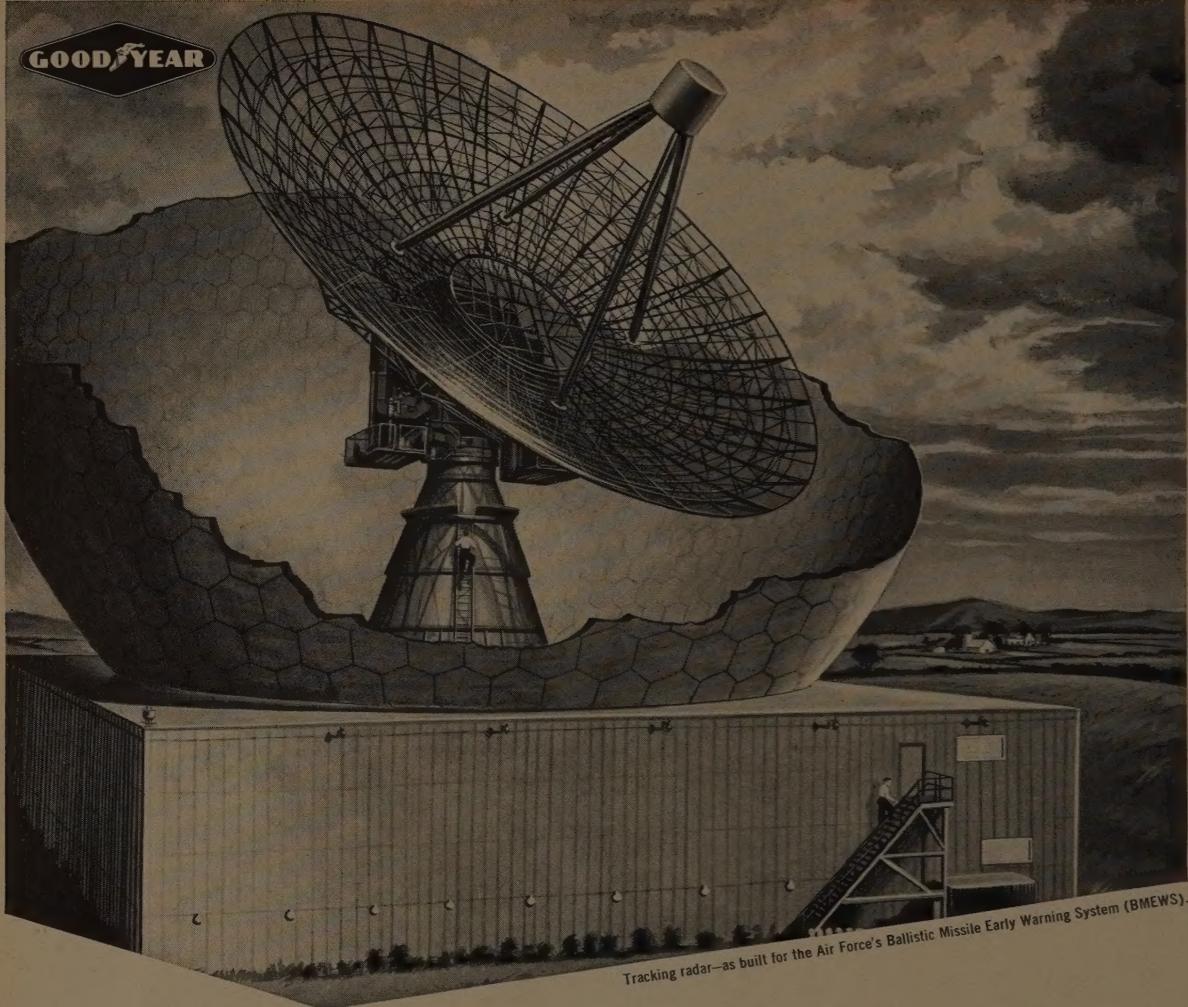
Celanese has for years conducted development research on blow-molding and is a major producer of

plastics used in the process. Notable among these is "Fortiflex," a new type of polyethylene which unlike previous polyethylenes is tough, rigid and boil-proof. Blow-molding of Fortiflex-type-polyethylenes has revolutionized the packaging of detergents.

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For more information on blow-molded products, write: Celanese Corporation of America, N. Y. 16.

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practicable. Goodyear-developed reinforced plastic radomes protect the antennas from gale-force winds and arctic storms. Goodyear research into new ways of doing things helps make life better, safer—cuts a new path to the front door of space.

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THE FINANCIAL

Analysts Journal

Volume 16, Number 3
May-June 1960

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Scholarship Winner Now a Financial Writer

Rendering "an account of one's stewardship" was a familiar historical phrase to those who listened, some war-timed years ago, to the fireside chats of the only man ever to be elected four times to the White House.

And in a more limited sense we thought of "stewardship," just recently, while lunching with the first winner of the Helen Slade Sanders Memorial Scholarship: Sylvia Auerbach.

Winner Auerbach has just completed a year's study of financial writing at Columbia University's Graduate School of Journalism. And she is the first of what we envision as a long line of students who will benefit from the scholarship established two years ago by The National Federation of Financial Analysts Societies, for graduate students interested in financial writing. Dean Edward W. Barrett tells us that the first winner has been just that: a winner in every sense of the word.

But she has done more than chalk up an enviable academic record. And she has done more than make scores of friends in the financial community. For, the crowning result of her "stewardship" is the fact that she landed a job (the point of the scholarship) as a financial writer on one of New York City's major newspapers. The circuit is now complete. And this is no mean feat in a city where there are hundreds of financial writers, but relatively few on the distaff side.

Frankly we are greatly pleased. And somehow we like to think that the late Miss Slade (who was managing editor of this publication for many years) is smiling with us as she takes copy pencil in hand and, in effect, writes: "Well done, Sylvia."

One Thousand Analysts' Years: Beloit

By press time of this publication, the Board of Regents of the annual Beloit Seminar will be well into its task of academic selections. Such selections will result in one hundred Senior Financial Analysts being fortunate enough to spend the fourth week of August at Beloit College—which is associated with the University of Chicago. There, they may emphasize the second phrase of Sir Francis Bacon's famed observation:

Reading maketh a full man, conference a ready man, and writing an exact man.

To those who attain admission to the Seminar, we offer our congratulations and best wishes. We also earnestly recommend that they go prepared to contribute most importantly to the success of the Seminar by entering fully into the formal and informal discussion periods. Since the combined experience of the seminarians will be well in excess of one thousand Financial Analyst years, the opportunities for fruitful discussion are obvious. This, gentlemen, will truly be analysis. Make the most of it!—Howard Tharsing, Chairman, Board of Regents.

Correcting an 'Unbrotherly' Gesture

While thumping our editorial chest, in the March-April issue (page 56), over the fact that members from five Analysts Societies—from coast-to-coast—were authors of articles in that particular issue, we unintentionally omitted mention of Philadelphia as the sixth Society to be represented.

And just to "compound the felony" (as our lawyer Analysts friends might say), we "changed" the first name, on our cover listing, of Author Edmund A. Mennis, of the Philadelphia Society, to "Edward."

So, to the Financial Analysts of Philadelphia, in general, and to Edmund A. Mennis, in particular, we bow our ink-stained heads and hope that we'll again be *persona grata* in the City of Brotherly Love.

P.S.—In this issue there are seven member-authors, representing two Analysts Societies.

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1959—1960

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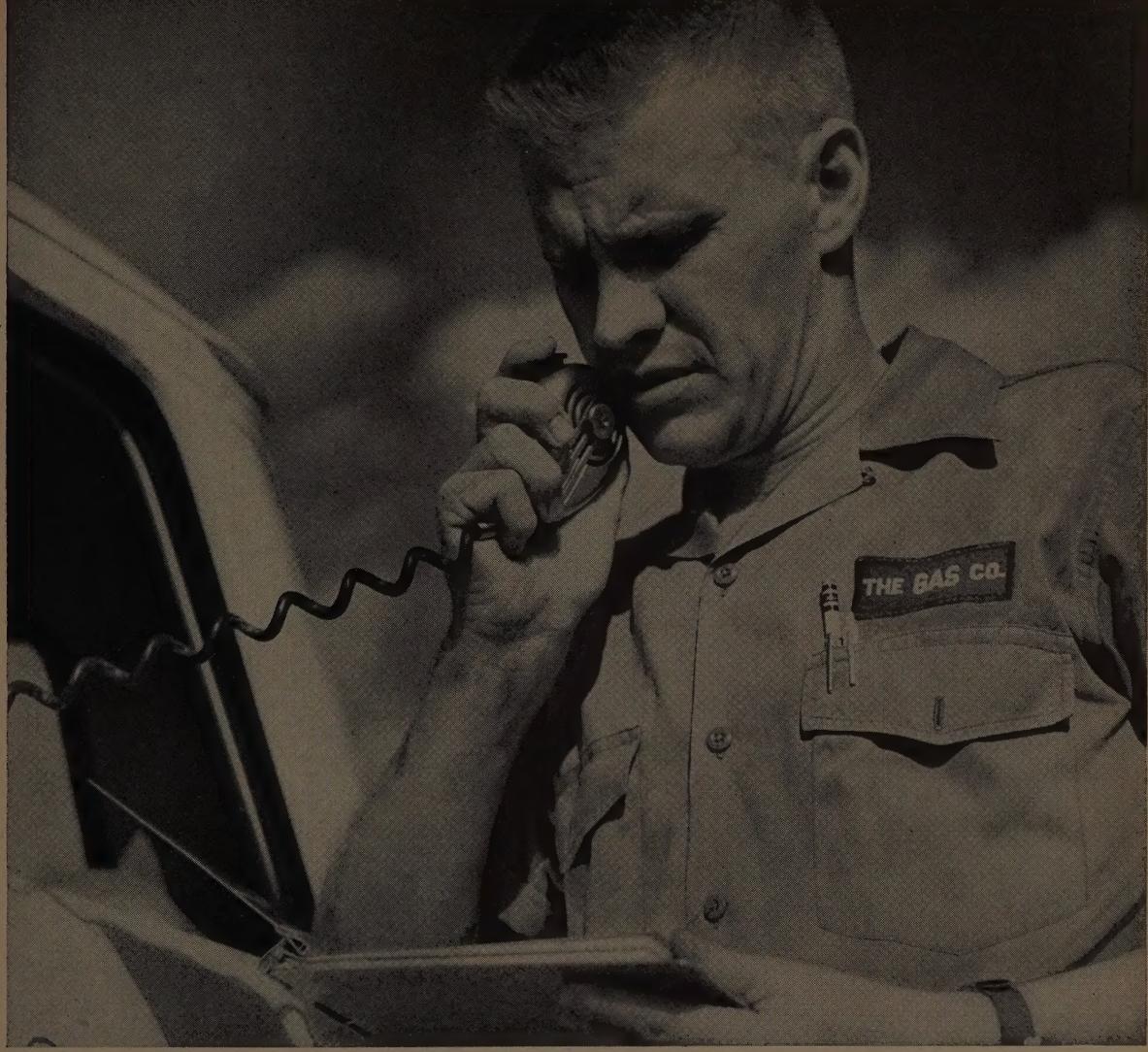
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More people than ever share in the growth of the Columbia Gas System

In 1959 over 3,200,000 homes and businesses used an all-time high of 736 billion cubic feet of natural gas delivered, directly and indirectly, through the Columbia Gas System — 36 billion more than in 1958.

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The number of owners of the System grew, too. Thirty-two thousand more of them — 182,545 in all — were listed as stockholders of The Columbia Gas System, Inc. at year's end.

And the men and women who work for the Columbia Gas System, including those who operate the System's pipeline from the Gulf Coast to the Kentucky-West Virginia border, shared \$79,000,000 in wages and benefits during the year.

Here is evidence of the growing demand for a vital public service—the production, transportation and delivery of natural gas — on which so many people depend for their daily comfort, convenience and economic betterment. *For the complete story on the growth of the Columbia Gas System—and its continuing investment in better service for more people — write for your copy of our 1959 Annual Report.*

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Gas
SYSTEM, INC.
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W. R. GRACE & CO.

reports on 1959

**Chemicals lead the way to
over-all improvement**

In 1959 earnings of W. R. Grace & Co. were 48% higher than in the previous year, amounting to \$14,827,290. Earnings per share were \$3.04 compared with \$2.07. The major factor in the improvement was a substantial rise in the earnings of the chemical divisions, which contributed 68% of total pretax operating profits.

In addition, Latin American earnings were higher as economic conditions improved and exchange rates were more stable. Conditions continued to be difficult in the shipping industry and Grace Line profits were lower.

Important developments of 1959 and early 1960 included the purchase of a majority interest in Cosden Petroleum Corporation, an independent refiner and producer with a strong position in petrochemicals; entry into the manufacture of synthetic jet lubricant esters, as well as plasticizers, by the new Hatco Chemical Division; and the completion of three successful wells in the Libyan oil exploration venture in which Grace is associated with Texas Gulf Producing Company and Standard Oil Company (New Jersey).

For a copy of the Company's 1959 Annual Report, just published, write to the Public Relations Dept., 3 Hanover Square, New York 4, N. Y.

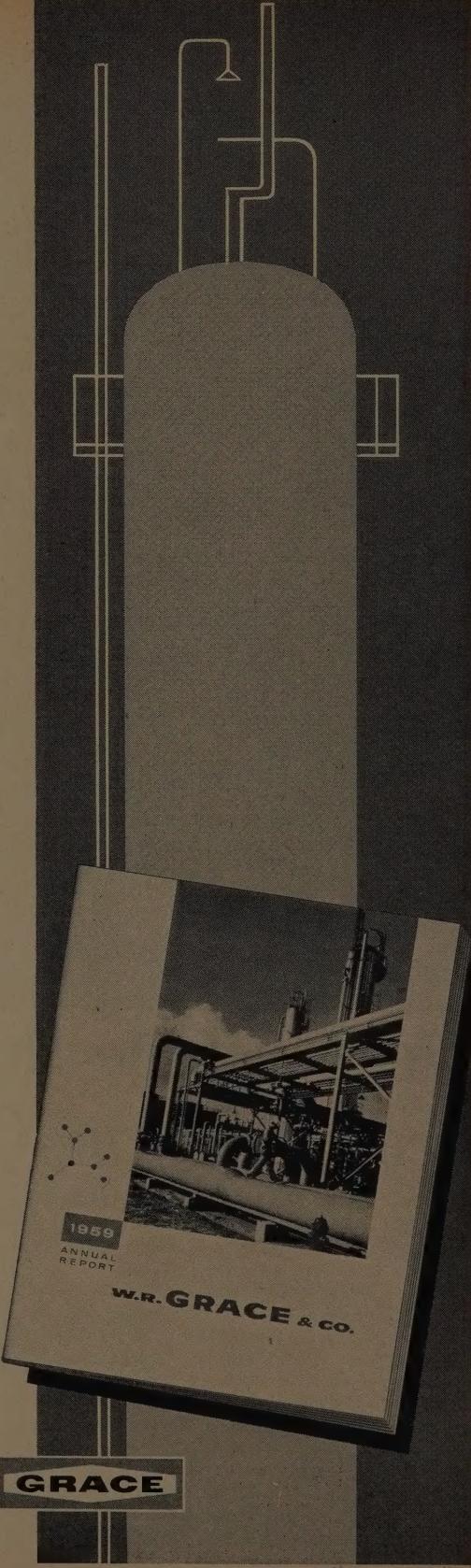
Highlights of the Year's Operations

Year Ended December 31

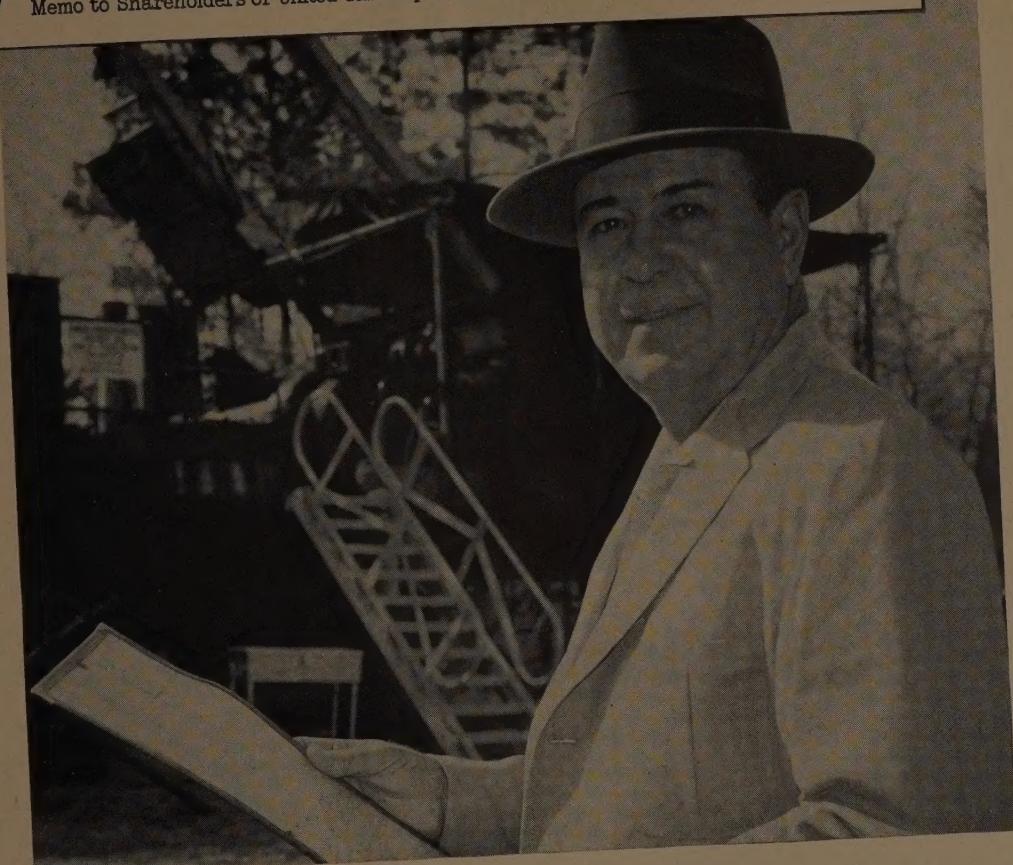
	1959	1958
Sales and Operating Revenues.....	\$469,695,671	\$434,234,391
Net Income After Taxes.....	\$ 14,827,290	\$ 10,039,855
Per Share of Common Stock.....	\$ 3.04	\$ 2.07
Cash flow per share.....	\$ 8.34	\$ 7.51
Preferred Dividends Paid.....	\$ 928,664	\$ 928,664
Common Dividends Paid.....	\$ 7,343,155	\$ 9,692,815
Per Share—at rate of.....	\$ 1.60	\$ 2.20
Stock Dividend Paid on Common.....	2%	
Net Working Capital.....	\$138,135,774	\$130,295,418
Current Ratio.....	2.5 to 1	2.7 to 1
Net Fixed Assets.....	\$232,735,277	\$221,931,925
Stockholders' Equity per Common Share.....	\$ 47.77	\$ 47.44
Number of Common Stockholders.....	30,052	28,052

W.R. GRACE & CO.

Executive Offices: 7 Hanover Square, New York 5, N. Y.



Memo to Shareholders of United Gas Corp. from W. H. Spears, Exec. Vice-Pres., Production...



UGC DRILLING PROGRAM EXPANDED

Stepped-up exploration and drilling by United Gas Corporation's producing subsidiary in 1959 resulted in 66 net wells, 69% over the previous year. Four wells were drilled from our new mobile offshore barge. We produced 16% of the 1.3 trillion cubic feet of gas sold by the system last year, plus 7½ million barrels of crude oil, 61 million gallons of condensate and nearly 44 million gallons of natural gasoline. At year-end we owned 94,000 acres of fee lands and held oil and gas mineral leases on an additional 1,600,000 acres.

**UNITED
GAS**
CORPORATION

SERVING THE GULF SOUTH

Headquarters, Shreveport, La.

WORLD'S LARGEST HANDLER OF NATURAL GAS



What is the Bell System?

THE Bell System is wires and cables and laboratories and manufacturing plants and local operating companies and millions of telephones in every part of the country.

The Bell System is people . . . hundreds of thousands of employees and more than a million and a half men and women who have invested their savings in the business.

It is more than that. **The Bell System is an idea.**

It is an idea that starts with the policy of providing you with the best

possible telephone service at the lowest possible price.

But desire is not enough. Bright dreams and high hopes need to be brought to earth and made to work.

You could have all the equipment and still not have the service you know today.

You could have all the separate parts of the Bell System and not have the benefits of all those parts fitted together in a nationwide whole. It's the time-proved combination of research, manufacturing and opera-

tions in one organization—with close teamwork between all three—that results in good service, low cost, and constant improvements in the scope and usefulness of your telephone.

No matter whether it is one of the many tasks of everyday operation—or the special skills needed to invent the Transistor or develop underseas telephone cables—the Bell System has the will and the way to get it done.

And a spirit of courtesy and service that has come to be a most important part of the Bell System idea.

BELL TELEPHONE SYSTEM



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Stock Values and Stock Prices

by Nicholas Molodovsky

PART ONE

A GENERATION OR TWO AGO, few investors would have considered putting their money into stocks insufficiently backed by tangible assets. Their net worth was an objective standard of value. Quite independent of the stock's market price, it was a sensible guide for investing. In poor times, the principal was likely to remain safe while providing a reasonably assured and adequate income. And if the stock's earning power increased over the years, both principal and income grew.

Yet, frequently, some of these asset-heavy investment fortresses stood ponderously still at the same levels of earning power and price, while prices and earnings of many equities deeply submerged in asset-accounting water surged irresistibly upward.

Gradually, the effect of earnings on stock prices began to impress investors, and they tried to use them in measuring stock values. One of the early notions was that the fair value of a stock could be ascertained by applying a uniform multiplier to its current earnings.

The 'Rule' of Ten-Times Earnings

Valuation of Common Stocks, in the February 1959 issue of this publication, described the circumstances that gave birth to this belief. It mentioned also that, according to an authoritative financial periodical, many people still held it. Browsing through earlier issues of the same magazine, we came across some additional comments:

"The table on this page revives a method which enjoyed wide popularity during the securities market upswing of the 1920's and the tortuous downswing of the 1930's for estimating the 'worth' of common stocks. In the buoyant 1920's, when an industrial company's shares were selling at around 10 times earnings, actual or closely estimated, the price was considered by the trading fraternity as reasonable, meaning reasonably low.

"Technically, the partisans of such a measure of value spoke of the ratio of price to earnings."¹

When earnings remain stable, a constant capitalizer

1. For References and Notes see Appendix.

Nicholas Molodovsky holds a master's degree in economics from Harvard University and a doctor's degree from the University of Paris. He has more than 25 years of investment management and financial analysis experience in the United States and Europe and is the author of many publications in economics and finance. Dr. Molodovsky is an Associate Editor of this Journal and a correspondent of La Vie Francaise of Paris.

makes sense. But the multipliers must reflect changes in earning power.

Price-Earnings Ratios and Stock Market Levels

Another tenacious idea was not helpful to investors: the thesis that when price-earnings ratios are historically high, stocks are overpriced; and that when stocks are cheap, the ratios become invitingly low. To bring the relations between stock prices and price-earnings ratios into sharper focus, let us look at them through the stereoscopic viewer of a scatter diagram.

Figure I pictures ratios (horizontal scale) and prices (vertical scale), 1871-1959. To avoid cluttering the chart, we omitted century figures, but there cannot be any confusion. The earliest years plotted are the 1870's, and the most recent years do not extend beyond the 1950's. The years of bull market peaks are marked by triangles, those of bear market troughs by heavy dots.²

The absence of correlation between prices and price-earnings ratios is obvious. The points, the triangles, and the heavy dots are scattered throughout the diagram. Evidently, ratios are not always high when prices are forming tops, or low when stocks are scraping bottoms. In the turning areas of stock prices they vary greatly, affording no basis for judgment whether stocks are dear or cheap.

Nor do the ratios rise in bull markets and accompany bear markets in their slides. They do rise in 1926-29, but with similar consistency they decline in 1934-37. At the end of each period, they had reached their respective positions by very different routes and from opposite directions.

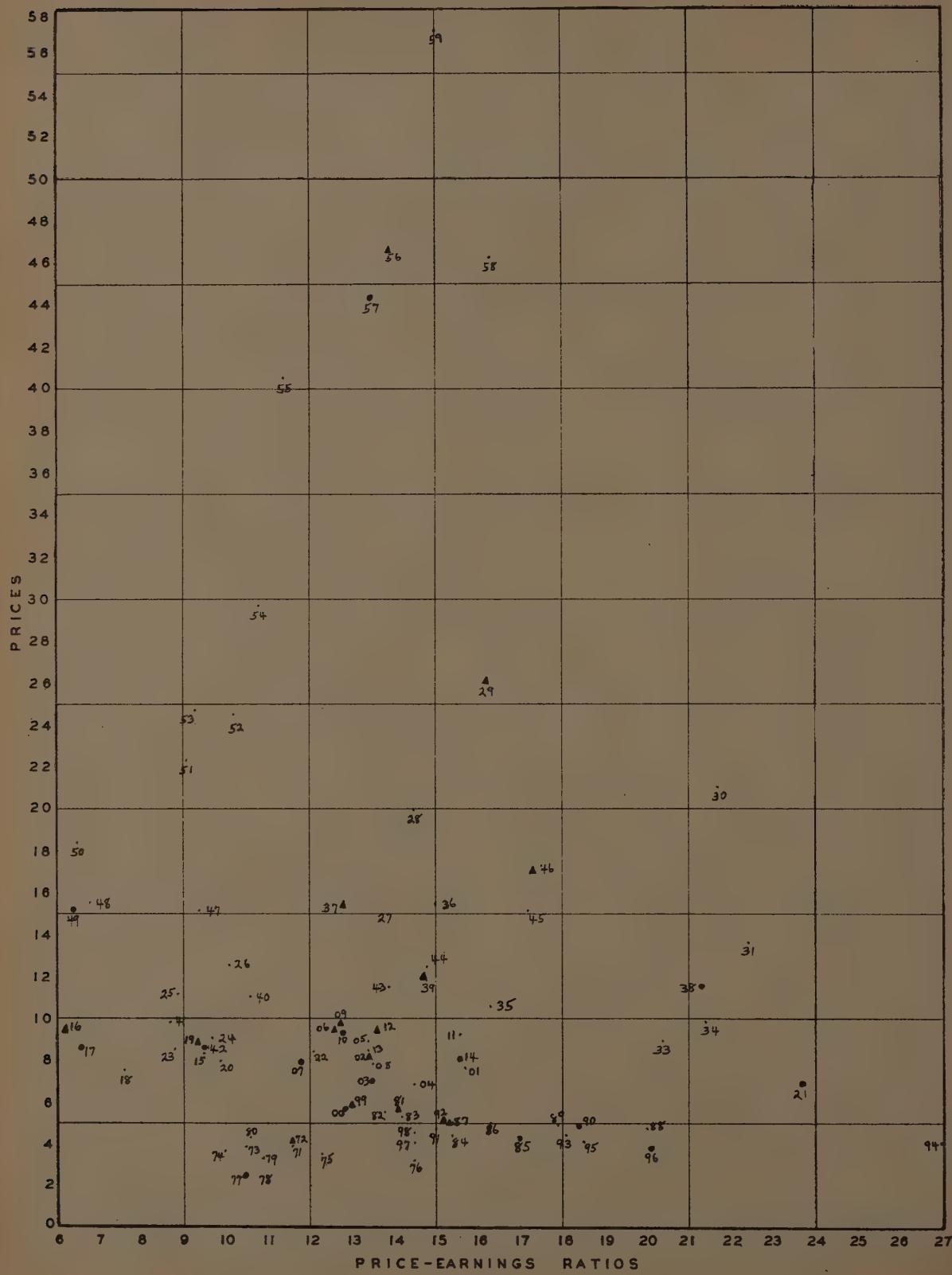
The lack of correlation between prices and ratios becomes particularly striking when we observe the tremendous range covered by prices within the same relatively limited zone. Thus, the 13 to 17 times earnings multipliers lie half way on the scale of price-earnings ratios. Within this rather narrow strip, fluctuations in stock prices have been extraordinarily wide, and have encompassed both peaks and troughs of their cyclical movements.

While there is no iron clad pattern in the general structure of the diagram, the price-to-earnings ratios tend to cluster in the middle or "temperate" zone, and the "tropical" zone of the highest ratios is dominated by years of economic and market recessions. The "arctic" region of the lowest ratios has less clearly marked characteristics, but numerous war or rearmament years are in it.

The diagram gives the impression that price-earnings

The author wishes to express his gratitude to Catherine R. May for her invaluable assistance and to Martha Anderson for her superlative editorial skill.

Figure I—Prices and Price-Earnings Ratios: 1871-1959



ratios reflect underlying economic conditions and are not associated with any particular level of prices.

On the scale of the ratios, the distance between 1928 and 1929 is small. But between 1929 and 1930, when stock prices declined not quite as much as they had risen in the preceding year, the ratios rose markedly, indicating the passage from economic expansion to contraction. Strange as it may seem, price-earnings ratios are highest during depressions; wars and inflations tend to bring low ratios.

A Closer View

To what extent has the validity of the diagram been weakened by the use of annual data? They average out and may neutralize the fluctuations in stock prices. Steep rises and staggering declines sometimes take place during the same year. Summarization in a single figure obliterates them. In terms of Dow-Jones Industrials, the annual mean price for 1937 was 165; but in the last six months alone it rose from 163 to 190, then collapsed to 112. And to take an example of a turning area containing a reversal of a bear market, the annual mean for the Dow-Jones Rail Average was 27 in 1932; yet, in the first nine months, it dropped from 42 to 13, then recovered to 41. These illustrations are not unique.

The legitimate doubt about the significance of annual data was examined in *The Analysts Journal* of May 1953. From this study, too, the writer borrowed the scatter diagram and some parts of this discussion. To that extent he has plagiarized himself. But the diagram has been brought up-to-date and recomputed in terms of the new Standard & Poor's "500" indexes.

The look at closer range in the 1953 study, in monthly figures, not only bears out but even strengthens the conclusions based upon annual data. During the early phase of the great bull market of 1921-29, price-earnings ratios began to decline as prices started rising. In its middle years, 1924-26, the ratios moved practically sideways along the low level of nine times earnings. In 1927 they did shift to a higher plateau, but largely because earnings fell. Only during the last three months of the market's dash to its summit did the ratios also rise vigorously.

The bull market of 1932-37 unfolds an even more intriguing story. With few interruptions, price-to-earnings ratios never ceased to decline from their all-time high reached during the depression.

A relatively recent exception to the normal absence of correlation between stock prices and price-to-earnings ratios prompted some investors to a bit hasty conclusion. During the bull market of 1942-46, prices and ratios were in step; the latter were low at the bear market bottom of 1942, and high at the 1946 top of stock prices. However, earnings were meanwhile paralyzed. Measured by the "500" index, they were 18% higher at the beginning of 1942 than at the beginning of 1945. During this bull market, stock prices rose because of the pressure of idle money accumulated from the wartime shortages of civilian goods, not in response to a cyclical expansion. They broke when,

with the end of hostilities, restrictions on the production of consumer goods were removed, thereby destroying this artificial dam.

Those Tantalizing Ratios

The price-to-earnings ratio has become the most popular yardstick in financial analysis because it seems so bewitchingly simple. Authors of voluminous investment treatises often take its trustworthiness for granted, and confidence in its meaningful nature bobs up time and again in the torrents of written and verbal comment on daily stock trading.

Nevertheless, as our illustrations suggest, the ratios are not foolproof. Their apparent simplicity may be a booby trap. It camouflages complex and ever-changing relations of two factors that are in constant flux and quite frequently unrelated.

Perhaps the main weakness in using the ratios for evaluating stocks or the general market stems from their nature: they are a quotient. When we try to transform them into multipliers, we have to twist them around. It can be done, but it's a *tour de force*.

Through continuous observation and comparison, financial analysts evolve an empirical series of "multiple multipliers." Different types of stocks acquire various price-earnings ratio characteristics. This cumbersome structure is serviceable for working purposes, if we eliminate such misconceptions as the 10 times earnings "rule" and the non-existent correlation between price-earnings ratios and stock prices. Just the same, to disentangle earnings from price and check how firmly each can stand on its own feet might be worth while.

The Province of Price

Price may be considered first: it stands closest to the tempting objective of making money.

In *Seven Kinds of Inflation*, Richard Dana Skinner remarked: "More zeal and energy, more fanatical hope and more intense anguish have been expended over the past century in efforts to 'forecast' the stock market than in almost any other single line of human action."⁸ Many of these efforts sought guidance from the action of price itself.

Today, price has lost nothing of its attraction. People look to it as to the morning star. Price devotees are numerous throughout the land. One of the most articulate labors for a tight, but not little, sect with headquarters in a manufacturing center 65 miles southwest of Boston as a missile flies.

According to a *New Yorker* profile, this consecrated man is immured in a boarded-up room where he can catch no glimpse of the activity in the street. Nor can the weather play on his spirits. In the fluorescent light flooding his office, he soon forgets whether it rains or shines. And in this workshop, which is completely soundproof, there is neither radio nor television to blare out the news of the day. In this vacuum he acts as an investment adviser and operates in stocks for his own account. Faithful to a self-imposed rule not to read any

financial papers, nor consult any sources of business information—unless they are at least two weeks old—he studies price sheets, ignoring corporate earnings. He buys and sells after scanning charts of daily stock price ranges and number of shares traded. He and his followers are convinced that market prices and the velocity of transactions flow from the collective reservoirs of all available knowledge concerning each stock. They claim that chart patterns reflect all impulses to buy and sell, and can more surely guide investors than the limited and often inaccurate information they could themselves secure and whose significance they may be unable to interpret.

Operations Research

Statisticians proceed upon a different logic. They have found that patterns of uncoordinated individual decisions often have the characteristics of a random or chance series. This process can be simulated by a technique based on a suitable manipulation of random numbers, known as "The Monte Carlo Method."

For centuries mathematicians have been improving ways of discovering the probabilities inherent in random series. More recently, industry has been increasingly exploiting them. Quality control, which has wide application in manufacturing production, is based upon sampling techniques rooted in the theory of chance occurrence. When we know a series is random, we can analyze it with mathematical and statistical tools, quite often opening the way to valuable practical conclusions. Time series and probabilities are among the essential ingredients of operations research.

For example, what has become known as Queueing Theory is doubtless the outgrowth of Traffic Theory, developed at Bell Laboratories for planning installations of telephone equipment. To engineer and install equipment that could meet in full all demands of all users at all times would be economically wasteful. The goal is to provide adequate service ensuring at a reasonable cost practically full satisfaction of all needs with only a quite tolerable waiting for a few at the peak of activity.

People telephone for personal reasons which are unconnected and independent. Nevertheless, probability theory can often plot the fluctuations in the incidence of calls, so that adequate but not extravagant equipment can be installed. The recurrence, frequency, and sequence of calls are essentially random, yet their patterns form mathematical curves analyzed years ago in connection with studies of probabilities. As long as essentially non-random individual occurrences remain collectively random, they can be statistically studied and their patterns projected into the future.

The market action of stocks induced by multiple and unrelated impulses of buyers and sellers, from the four corners of the world, motivated by heterogeneous urges, suggests that it may be a random series. If so, it can be subjected to mathematical analysis and forecasting. Sequences of random numbers do produce patterns creating a superficial impression of meaningful regu-

larity. Yet they are merely levels of chance oscillations of successive changes in size, transcribed into connected shapes.⁴

In industry, some definite assumptions are usually made, although not always publicized, in the use of quality control or other types of test to determine the occurrence of changes in a system. For example, a large number of independent small factors may be assumed to be at work in a manufacturing or operating situation. If, in their aggregate, they form a normal or bell-shaped distribution of the observed variable, one often says chance is the cause. And predictions can frequently be made how the result will continue to vary under the same system of chance causes. When it does not remain within the predicted limits, a so-called "assignable," or reasonably discoverable cause, is hypothesized and, in practice, can frequently be found. If not, the start-to-look limits are widened until a cause is found when the limits are exceeded.

For stock prices, however, the assumptions one can make for developing a theory of fluctuations—or for creating a simulation—are decidedly more complex. Unlike telephone callers, buyers of stocks are influenced by the activities of other buyers. As an expert in mathematical controls pointed out to us, this creates a feed-back problem with its attendant instability, requiring more sophisticated analysis than is successful in assuring quality or providing adequate telephone service. He, nevertheless, believes that some progress can be achieved toward constructing mathematical models that will suitably describe changes in stock prices. Among others, the approaches followed in the theory of games might eventually yield encouraging results, although they are exceedingly difficult to set down mathematically, except for the simplest kinds of competitive activity.

For our own part, we believe that while analysis of the price action of stocks is necessary and fruitful, it can play only a supporting role. We shall discuss it in *Part Two* of this study.

Capitalized Earnings

Of the Siamese twins arbitrarily and artificially tied in the unhappy union of price-earnings ratios, earnings are without much doubt the more viable and stronger. When separately studied, they help us to understand more clearly the nature of stock values.

Perhaps the principal reason the hybrid ratio approach cannot avoid being contradictory and uncertain is that, unlike its predecessor, the balance sheet method, it is not anchored to any general principles of unquestionable validity and significance. It is therefore inherently helpless to produce a general theory of valuation of common stocks, or a method of appraisal squarely fitting — without exception — all observable cases within an encompassing and consistent structure.

To become safely and independently airborne, capitalizers applicable to earnings should not be tied to price. Earnings themselves and their own character-

(Continued on page 79)



MORE COPPER

for
Industry's Growing
Needs
pouring through
Anaconda's pipeline down
the Chilean Andes

Throughout the world, demand for copper continues to rise. The cause for this increasing demand is not hard to find: The revolution in electronics, technological progress in many industrial fields, a rapidly rising population and steadily improving living standards have been chiefly responsible. The copper industry stands ready to meet this growing demand with an ever-increasing productive capacity, thanks in part to Anaconda's development of important copper deposits in Chile.

Through the unique pipeline system shown above at Anaconda's new El Salvador mine and concentrator, the copper concentrate in slurry form flows down the western slopes of the Chilean Andes for 14

miles to the Company's railroad loading point at Llanta. There it is dewatered before being hauled to the Potrerillos smelter—the end result of three years of research, development, construction, and a 110-million-dollar investment.

Despite all of the copper Anaconda has produced in the past, the Company's ore reserves today are substantially greater than ever before. In the future, Anaconda may be counted on to continue its mineral exploration—to continue developing, in its research laboratories, new applications for copper, brass and bronze—to continue meeting the growing needs of world industry for more and better products in the entire nonferrous metal field.

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Daily aboard TI's 405-ton, 158-foot SONIC—uniquely a complete sea-going seismic and acoustic investigation center—geoscientists are studying and mapping the structure of the earth below the ocean's floor. Illustrated above is the seismic reflection method, with explosive charges detonated nearby for detailed study of energy travel through water and rock. Technicians aboard the SONIC also record refracted seismic energy, measuring signals through the ocean

floor from charges exploded on land or in water as much as 35 miles away. Similar land-based TI geophysical parties are now working in more than 22 countries of the world.



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scientific key to Davy Jones' locker!

At a time when the focus is on outer space—a time when we know more about the moon's surface than we know about 70% of the earth's surface—geophysicists such as this sea-going scientist from Texas Instruments are furthering space-age technology with studies of inner space—the oceans.

He represents one of more than 60 global TI geophysical investigation parties who are applying 30 years' experience in earth sciences to measurement of earth's land and sea physical characteristics. Fundamental to modern defense, earth sciences have extended their traditional role in petroleum exploration to gathering information vital to programs in *underwater warfare, missile accuracy, seismic communications, detection/surveillance of nuclear tests, and design of underground defense structures.*

TI's talent for these "down-to-earth" studies dates back to 1930, when the company was formed as Geophysical Service Inc.—the first independent company to perform seismic reflection surveys for oil exploration. And from GSI's early need for sensitive electronic seismic equipment

came an engineering skill that was applied to Anti-Submarine Warfare systems in World War II, and resulted in TI's Apparatus division becoming a leading ASW equipment manufacturer today. This rare blending of earth sciences knowledge and experience with skills in systems and components gives TI a unique capability in space-age technology.

The founding company (GSI) is now the geophysical exploration arm of TI's Geosciences & Instrumentation division, and these capabilities are extended to governmental agencies by the Geosciences department. Designing and manufacturing advanced instruments and systems in wide use by these parties and others is the Instrumentation Product group, with such products as WORDEN* gravity meters, EXPLORER* seismograph systems and seisMAC® seismic computers.

For more about geosciences at TI, write to Marketing department for Bulletin DM-101.

*Trademark of Texas Instruments

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OFFICES IN 75 PRINCIPAL CITIES OF THE WORLD

The Valuation of British Equities

by Werner S. Schott

AS FINANCIAL SECURITY ANALYSIS has assumed an international scope, the complexities of valuation, already of considerable proportion on the domestic scene, are many times compounded.

The end result of the valuation process must reflect not only differing accounting practices, but also systems of economic control and taxation, often foreign to our own concepts. In but few countries abroad do either the applicable laws or historical practices require the disclosure of corporate financial transactions to the extent prevalent in the United States. Only in the case of the large Dutch international companies and British companies it appears that reasonably valid comparisons of income statements can be made with those of American companies.

Traditionally, a large number of English securities have been actively traded in the United States, and more recently a number of the better known shares have made their appearance in our own institutional portfolios. And naturally comparisons have been attempted between British and American companies operating in the same industries. Moreover, it is reasonable to anticipate that as investment thinking becomes more international, there will be even greater interest to view investment commitments on an international rather than on a localized basis.

Werner S. Schott, of the foreign department of Bear, Stearns & Co., is in charge of research on foreign securities. As a Financial Security Analyst, Mr. Schott, in the past, specialized in utilities, oils and other domestic industries. He has also engaged in consulting work in the field of security valuation. Mr. Schott holds a master's degree from New York University's Graduate School of Business Administration.

In America, valuation techniques have been rather scientifically developed and investors have, by and large, become accustomed to certain universal yardsticks, such as the price-earnings relationships. There is therefore a natural tendency to want to apply the same or similar principle of valuation as well to British securities—the subject of this article.

The purpose then of the instant discussion is to suggest that the valuation process is far from complete when the often-used price/earnings test is applied. Other factors often take on added importance in determining the value of the stock of a company which operates under a different set of economic, and particularly tax, concepts from our own. Thus, it is not surprising that a certain degree of confusion has arisen in comparing the earnings of British and American companies.

In this article it is not intended to set any hard and fast rules for making adjustments in the comparative valuation process, but rather to emphasize the fact that the difference in tax concepts between the United Kingdom and the United States have an overbearing influence on the value assigned to earnings by the British shareholder, on the one hand, and the American, on the other.

Since the following discussion will deal to some extent with the method of taxation in the United Kingdom, it may be well to explain, briefly, the bases of taxation in that country. The United Kingdom, has as its basis an income tax currently at the rate of 38½%, which is applied both to earnings of corporations and individuals, inasmuch as the British concept does not differentiate between natural and artificial persons. In addition, there is currently levied a profits tax of 10% against company profits only, and individual in-

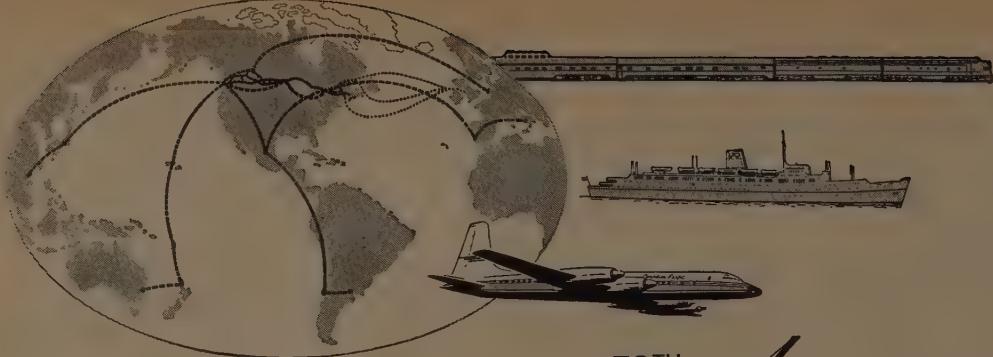
comes above certain minimum are further subject to a graduated surtax.

Methods of Tax Payments

Thus, while under certain conditions earnings may bear a tax in excess of the basic income tax rate of 38½%, once this tax has been levied against a given amount of income, and this income is then distributed, no further income tax (although possibly surtax) is payable. Accordingly, when a corporation pays dividends to its stockholders, such distributions are made after deduction for the income tax. The stockholder then reports on his own tax declaration the amount of the gross dividend, computes his tax liability and claims a credit for the amount of income tax withheld by the corporation. In some respects this works in a manner similar to the American system of withholding Federal income tax (and in the case of New York State, a state income tax) from periodic wage and salary payments.

Until a few years ago the British system was somewhat more complicated than it is today; then Britain's corporate earnings were subject to a profits tax against which a credit was allowed for undistributed income. Thus, with a penalty on dividend distributions, it became a practice in New York to adjust the after-tax earnings of the British corporation for the income tax attributable to the dividend distribution. In 1957 the tax system was changed to impose a flat 10% profits tax, regardless of whether these profits were retained or distributed. At that time the income tax was 42½% which made the corporation total tax liability 52½%, thus about equal to the American tax burden.

Subsequently in 1959, the income tax rate was further reduced to



Canadian Pacific

79TH Annual Report RAILWAY COMPANY

Extracts from the report of the Directors to the Shareholders:

During 1959 your Company continued to improve and adjust its properties and services to meet changing requirements and to achieve increased efficiency. The dieselization program was brought close to completion, plans were advanced for new freight marshalling yards, centralized traffic control signal systems were installed in new areas, piggyback services were extended, and the new service integrating the handling of merchandise traffic was introduced in British Columbia. Also during the year the 17-storey, 400-room addition to the Royal York Hotel was opened, a daily domestic transcontinental service was inaugurated by your Air Lines, development of your oil and gas interests was actively pressed, and your Telex and microwave services were extended.

In May a Royal Commission was appointed to inquire into problems relating to railway transportation in Canada, and the possibility of removing or alleviating inequities in the freight rate structure. Your Company considers that the only serious inequity is that arising from fixed statutory rates on grain and grain products. The revenues received by your Company at these rates now fall far short of just and reasonable remuneration for the handling of this traffic. Accordingly, your Company has submitted to the Commission a plan which will maintain for Western grain growers the present level of freight charges on grain and grain products moving to export positions in Western Canada and at the same time provide the railways with compensation based on just and reasonable rates. Under this plan the difference is to be assumed by the Government of Canada as necessary assistance from the people of Canada to Western grain growers.

Competition from automobile travel has made it necessary over the past several years to adjust your railway passenger services. Passenger trains have been eliminated on some branch lines and reduced on certain main lines, and economies have been derived from the wide use of rail diesel cars. Continuing effort is being directed toward curtailing expenses in accordance with the reduction in railway passenger business.

Although 1959 witnessed a resumption in the upward trend of Canadian business activity which had been interrupted during the previous two years of recession,

your railway did not participate fully in this recovery. Freight revenue was adversely affected by strikes in the steel industry in the United States and in the forest industry in British Columbia.

Railway revenue increased 2% over 1958, largely as a result of higher freight rates, while expenses increased 3% chiefly owing to increased labour costs. Net earnings were therefore slightly below those of 1958, and provided a return of only 2.7% on your net investment in railway property.

In view of the "freeze" on freight rates imposed by the Government last March, hearings were deferred on the application before the Board of Transport Commissioners for such increase as would permit attainment of the permissive level of rail earnings established by the Board for your Company. No clear indication has been given by the Government as to when it will be possible to proceed with the application. The results of operation of your steamships and hotels showed considerable improvement but a heavier loss in the operation of your Air Lines and the transfer of certain mineral rights to your wholly-owned subsidiary, Canadian Pacific Oil and Gas Limited, resulted in a decrease of 5% in Other Income as compared with the previous year.

Net Income, after fixed charges, totalled \$31.3 million. After providing for dividends of 4% on Preference Stock, earnings available for dividends on Ordinary Stock and for reinvestment amounted to \$28.3 million. This was equal to \$1.97 per share on 14,332,006 shares of Ordinary Stock outstanding at the end of the year, compared with \$2.09 per share on 14,211,783 shares outstanding at the end of 1958. Dividends on Ordinary Stock totalling \$1.50 per share were declared, the same as in the previous year, and payment was made of 75¢ on August 1, 1959, and 75¢ on February 29, 1960.

Capital expenditures were \$109 million. Of this, \$67 million was expended on railway plant and equipment, \$20 million on aircraft leased to your Air Lines, \$12 million on steamships, and the remainder on communications, hotels, and other properties.

The Income Account of your Company shows the following results for the year ended December 31, 1959, with comparative figures for 1958:

(next page please)

Canadian Pacific

RAILWAYS • STEAMSHIPS • AIRLINES • HOTELS • COMMUNICATIONS • EXPRESS • TRUCKING • PIGGYBACK

Canadian Pacific

INCOME ACCOUNT

Railway	1959	1958
Revenue.....	\$ 477,805,874	\$ 467,410,853
Railway Expenses.....	441,759,581	430,919,006
Net Earnings....	\$ 36,046,293	\$ 36,491,847
Other Income....	12,677,751	13,408,712
	\$ 48,724,044	\$ 49,900,559
Fixed Charges...	17,435,113	16,997,521
Net Income.....	\$ 31,288,931	\$ 32,903,038
Dividends:		
Preference Stock	\$ 3,029,053	\$ 3,068,538
Ordinary Stock..	21,497,897	21,217,963
	\$ 24,526,950	\$ 24,286,501
Balence transferred to Retained Income Account	\$ 6,761,981	\$ 8,616,537

HIGHLIGHTS

Year-end Position

Working Capital.	\$ 89,960,458	\$ 82,197,504
Investments....	156,967,926	163,197,279
Properties....	2,349,479,762	2,278,665,735
Funded Debt....	186,463,477	192,471,000

Traffic

Tons of Revenue Freight Carried	57,878,732	54,367,279
Revenue Passengers Carried.....	7,739,503	7,745,860

Revenue per Ton Mile of Freight	1.57¢	1.47¢
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Revenue per Passenger Mile	2.99¢	3.08¢
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Employees

Employees, All Services..	79,882	82,853
------------------------------	--------	--------

Total Payroll...	\$ 321,985,962	\$ 316,116,884
------------------	----------------	----------------

Average Annual Wage.....	\$ 4,031	\$ 3,815
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Tax Accruals

Income Taxes..	\$ 27,260,000	\$ 23,640,000
----------------	---------------	---------------

Property and Other Taxes..	11,715,342	10,909,292
-------------------------------	------------	------------

38 3/4 % so that today the overall tax bite in the United Kingdom, at 48 3/4 %, is somewhat less than the rates in effect in the United States. There are, of course, other differences in the tax systems, some of which favor British companies and some the American; but it is believed that on balance these differences are not sufficiently great to require particular consideration in the comparative appraisal of British and American securities.

It now becomes apparent, though, that the comparative valuation of British and American securities must reflect the differences in tax practices and, particularly, the fact that the American tax system indulges in double taxation of corporation profits whereas the British system does not. Although the more complete accounts of British companies will reflect the various items of income and expense in much the same manner as American companies, showing as the end result the net income after taxes, the absence of double taxation in the United Kingdom tax system weighs importantly enough for British Financial Analysts to value earnings *before* income tax, rather than our system of starting off with post-tax income. In both the British and American valuation processes, the jumping-off point are the earnings available for distribution to stockholders, but this is also where the similarity ends and the problems of comparison arise.

The British Analyst has established adequate yardsticks for valuing the risks and prospects of the various British industries, as measured by the capitalization ratio (the reciprocal of the price/earnings ratio) applied to earnings before United Kingdom income tax (but after the profits tax). We in America also have certain benchmarks to evaluate different companies and industries, but what happens when we try to apply these factors to the earnings of a British company? And should we apply them to the pre-tax or the net after-tax earnings of that company? Since, from the foregoing discussion, it is quite clear that the British pre-tax earnings cannot be considered the equivalent of the

American post-tax earnings, the answer to this query is that American valuation yardsticks cannot be, without adjustment, applied to British earnings and vice-versa. The nature of this exercise therefore concerns itself primarily with the nature and degree of adjustment necessary to bring about not necessarily a precise, but nevertheless, reasonably valid method of comparative analysis of British and American securities.

Methods of Comparison

Various methods have been worked out in the past to combat this problem of comparability, the most prominent being an adjustment to the British companies' net-after-tax earnings representing the amount of income tax attributable to the current year's dividend distribution. One school of thought, at least, justified this approach by suggesting that since there was no double taxation in the United Kingdom, it might be necessary for comparative purposes to break the British income tax into two parts, the corporate and individual, in order to arrive at a truer comparison with American companies' earnings.

To these upward revised earnings, the American Analyst applied his own yardstick of value, i.e., the American price/earnings ratio. Without passing judgment on the validity of this procedure, it should be noted that this involved the arbitrary restatement of the British companies' earnings by the Analyst, a task which might be considered outside of the Analyst's province. Then too, the practice of raising the earnings by the amount of the tax on the dividend tended to give a greater weight to the distributed earnings than to the retained earnings, factors for which the British Analyst in his method (i.e. valuing pretax earnings) fails to find any differentiation.

The progressive reduction in the rate of United Kingdom income tax has given rise to the argument that at today's British tax rate only the after-tax earnings of the British company need be considered in a comparison of this sort, since the

overall corporate tax burdens are approximately equal. This last subject was discussed at length in a learned article written by Harold Wincott in *The Investors Chronicle* of Oct. 23, 1959, entitled "U. S. and U.K. Company Earnings." In this article Mr. Wincott also touches upon the confusion between British and American terminology. But in the course of the discussion he introduces a cautionary note by suggesting that in a growing economy there is the need for corporate enterprises to retain a greater proportion of their income, and that should a British company decide to plough back all of its earnings, such sums would be little more than would be available to the American corporation.

Admittedly, however, Mr. Wincott takes this attitude from the point of view of the businessman whose main concern is the price that he has to pay for the earning power, leaving aside the question of dividend since this is a matter which can be adjusted at will. This argument leads to the suggestion that British earnings should be stated after the income tax to gain equal footing with the usual procedure of reporting American earnings. There is, of course, validity in this procedure if one were to look at earnings merely from the vantage point of the corporate managers. But the investment Analyst is more importantly concerned with the value of earnings to the stockholder who, regardless of whether dividends are paid out today or are anticipated in the future, looks to a definite return from his commitment. Thus the matter of tax liability upon either current or potential return cannot be easily overlooked.

To provide added perspective to the foregoing discussion, a hypothetical comparison has been drawn between a British and an American company, each having earnings, for simplicity's sake, of 100. The accompanying table shows the total amount of taxes payable by the corporation and its stockholders, and finally the combined total of the corporation's retained earnings and the shareholders' after-tax earnings, some of which can be considered as funds available for reinvestment.

	United Kingdom Company	United States Company				
Hypothetical pretax profit	100	100				
Profits tax (U.K. only)	10	—				
Income tax	39	52				
Net after tax	51	48				
Range of Dividend Distributions Out of Earnings						
	No Dividend Maximum Retention	Average Dividend Payout	Maximum Payout No Retention	No Dividend Maximum Retention	Average Dividend Payout	Maximum Payout
Gross dividend distributed	0	40 (a)	83	0	30 (b)	48
After-tax value of distribution assuming a tax rate of 40% applicable to shareholders	0	24	50	0	18	29
Earnings retained by company	51	27	0	48	18	0
Combined total of corporation's and shareholders' earnings available for reinvestment	51	51	50	48	36	29

Note: Figures rounded off for ease of comparison.

- (a) Average payout based on Financial Times Index of Ordinary Shares, End-of-March, 1960.
- (b) Average payout based on Moody's Average of 200 Common Stocks and 125 Industrial Common Stocks, End-of-March, 1960.

Although, as mentioned before, the United Kingdom income tax rate is 38½%, and individual taxpayers may be subjected to a surtax above that, the tax rate applicable to the British shareholder has nevertheless been assumed at 40%. This rate, though only slightly above the normal rate, should, according to the consensus of British financial people, represent a fair cross-section of British shareholders, particularly since it includes the important segment of investment trusts which are taxed only at the standard rate (38½%). In order not to distort the picture any further, the tax liabilities of the American shareholder have also been taken at 40%, although a number of economic studies in the past have indicated that the tax liability of the average American shareholder may be in excess of this bracket.

This table indicates emphatically how the system of double taxation works to the detriment of the American shareholder. The differential is not so great in the case where neither the British nor the American company pays any dividend, but increases sharply with higher rates of

payment. It will be seen that with an average dividend payout the amount of pretax earnings that can be reinvested on the part of the British company and its stockholders, is about 40% greater than for the American company under similar circumstances. And when the payout of earnings reaches the maximum point the differential rises to over 70%.*

One must conclude from this presentation that the reported after-tax value of a British corporation's earnings is greater than that of an American company. Therefore, whenever British and American earnings (after-tax, that is) are compared, it would be unrealistic to use the American yardstick since to the British shareholder the after-tax earnings in fact represent more re-

*Incidentally, the nature of the United Kingdom's tax calculations limits the declaration of a gross dividend to a maximum of 83 out of 100, since the corporation is first liable to the profits tax of 10% and the method of calculating income tax leaves 7% payable by the corporation which cannot be deducted from the payments made to shareholders.

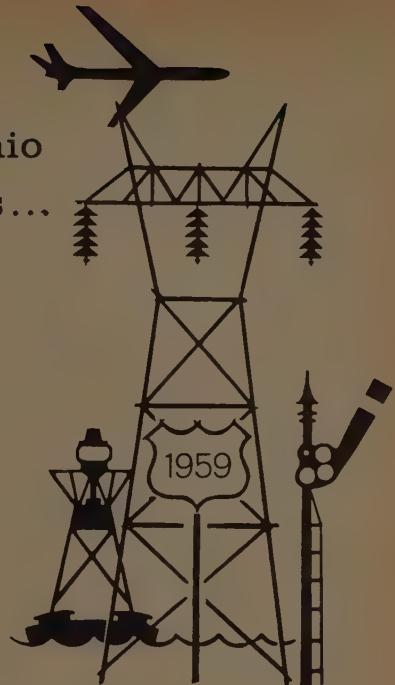
investment power than is inherent in the same amount of American earnings. The question then is to make provision for this differential in the valuation process through either an adjustment to the reported British earnings or, perhaps better still, through a variation in the price/earnings yardstick that the American Analyst would ordinarily employ.

The subject matter here presented could well use some further refinement to determine precisely the degree of adjustment necessary to bring comparisons into line; the method of comparing the percentage of pretax earnings available for reinvestment is undoubtedly but one of several measures of the value of the comparative earnings. But certainly the revelation that, with a representative average payout, the reinvestment value of a British company's pretax earnings are 40% greater than those of an American company, should give ample notice to the American Analyst to treat after-tax earnings of British companies with a greater degree of circumspection.

(Author's note: As this issue went to press, the British Chancellor of the Exchequer announced changes in the United Kingdom tax system, including an increase in the profits tax from 10% to 12½%. No change was made in the rate of income tax. Unfortunately time did not permit a revision of the calculations in this article, although the thoughts to be conveyed are not materially affected).

Northwestern Ohio
is going places...

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Diversification of industry and products powers the progress in the area served by Toledo Edison. Excellent transportation: rail, air, seaway, and interstate expressways carry these various products direct to all parts of the country and the world. The broad variety of products includes glass, motor vehicles, food, chemicals, primary metals, metal fabrication . . . a variety essential to the sustained health and growth of Toledo's economy.

Here are Toledo Edison highlights of 1959:

- Industrial kilowatt-hour sales — up 19% over 1958
- Operating revenue — up 9% to \$46.7 million
- Operating expenses — up 9% to \$37.0 million
- Operating income — up 8% to \$9.7 million

And the average residential usage increased 5% last year to 3,899 kwh — well above the national average.

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*Lacrosse, U.S. Army's most accurate surface-to-surface missile
—developed and produced by Martin*

MARTIN

Are High Prices Discouraging Small Investors?

by Roderick F. McDonald

IT IS SAID THAT SMALL INVESTORS, with limited investment funds, are prejudiced in favor of stocks with low unit prices, it being easier and more convenient to deal in round lots of 100 shares, or a large portion thereof, than in lots as small as ten, five or even fewer shares.

If such a preference is sufficiently widespread and is a factor affecting investment selections, it might have the undesirable tendency of directing small investors away from higher priced shares of well-established, successful companies. It might encourage them to buy speculative issues, purely because of low price. Since small investors are presumably least qualified to evaluate speculative securities, their attitude toward common stock investment could be soured by poor results.

Another thought which would follow logically, if this hypothesis is true, is that a corporation which desires to attract larger numbers of small investors to its shareholder list could facilitate that process by control of capitalization to maintain the price range of its shares at modest levels. But there is no way of measuring the thoughts of investors in order to prove or disprove this hypothesis. There is always the chance that a high share price gives an appearance of quality which small investors find sufficiently attractive to overcome any unwillingness to deal in small odd lots.

Despite the impossibility of complete measurement, there are some straws in the wind which contribute to a better understanding of this problem. A picture can be drawn of the unit price levels of issues which are most popular with a growing body of small investors. The National Association of Investment Clubs makes an annual survey of its membership, and among the data reported is a list of the 50 common stocks held by the largest numbers of investment clubs. The New York Stock Exchange has also made available the list of 50 stocks most popular with its Monthly Investment Plan subscribers. Thus, something concrete is available as to the favorite selections of some thousands of small investors.¹ If these groups are turning to lower quality stocks because they are cheaper, this should be reflected in their favorite investment selections. It is quite pos-

sible that the picture for these groups would be reasonably typical of small investors in general. At least, it seems likely that tendencies would be similar.

Large Investment Firms & Unit Prices

On the other hand, the large investment companies presumably are not influenced to any extent by unit prices. They deal in large sums of money and their selections should be motivated entirely by other factors. Thus, it is interesting to compare their favorite selections with those of the two groups of small investors mentioned above. The "Favorite 50" of 293 investment companies is published by Arthur Wiesenberger and Company in its annual volume on investment companies. While this "Favorite 50" list is classified in terms of total number of dollars invested in various common stocks, rather than the number of companies holding the issues, the Wiesenberger data indicate that there would be very little difference on this score. In fact, since professional investment of large sums is involved, the total dollar amounts are a better indication of investment choices.

Tabulations of the favorite 50 selections of the investment companies, the monthly investment plans and the investment clubs are presented in the appendix in three schedules, with stocks ranked in order of popularity. The holdings of the investment companies are as of Dec. 31, 1958. Those of the monthly investment plans are as of June 26, 1959, and the investment club data are for portfolios reported as of varying dates during the month of August, 1959. The schedules show the New York Stock Exchange closing prices of these securities at June 30, 1959, as well as prices for the same stocks at Dec. 31, 1958, and June 30, 1958. Since the portfolios were built up over a period, the figures do not represent precise acquisition prices, but they should give a useful summary picture of levels generally acceptable for acquiring and retaining these shares.² In some cases, stock splits caused a drastic reduction in unit prices during the period, but no adjustments have been made since the interest of this study is in unit price *per se*, rather than in growth of investment values.

Prices of Favorite Selections of Investment Companies Compared with those of Small Investor Groups

Analysis and comparisons which can be made from these lists produce some very interesting results. A good starting point is with frequency distributions and median prices of the three lists. These are shown in *Tables I, II and III*.

It is clear from these comparisons that the investment companies have tended to favor stocks which are somewhat higher in price than those most frequently pur-

1. Footnotes at end of article.

The author wishes to acknowledge the assistance of Loren J. Christensen and Kenneth C. Stine, of Chrysler Corporation's treasury staff, who prepared statistical tabulations and calculations in connection with this article.

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Table I

**Favorite 50 Common Stocks of Investment Companies
(as of Dec. 31, 1958)**

Frequency distribution of closing prices

	June 30 1958	Dec. 31 1958	June 30 1959
\$ 10 - \$19.875	—	—	—
20 - 29.875	1	—	—
30 - 39.875	3	4	3
40 - 49.875	11	7	8
50 - 59.875	8	7	8
60 - 69.875	6	5	4
70 - 79.875	6	4	3
80 - 89.875	5	5	6
90 - 99.875	3	4	3
100 and Over	7	14	15
Median Price	60	77	76

chased by the small investor groups. In addition to differences between medians, this conclusion is indicated by the very small number of investment company favorites in the lowest price brackets, and the small number of selections in the higher price brackets by the two other groups. In fact, the price distribution of the investment company selections, especially on the more recent dates, is so well scattered that there is very little tendency shown to concentrate holdings in any particular price bracket. This is as might be expected from professional, large-scale investment. On the other hand, the selections of both small investor groups tend to cluster in the more moderate price brackets, although the upward trend, in stock prices during the year covered, has resulted in a corresponding upward movement of the entire distributions.

It is also interesting to make a comparison with the frequency distribution of share prices at the same dates for the 50 largest U. S. industrial corporations.⁸ A schedule listing these 50 corporations is also included in the appendix. The frequency distribution and median prices are shown in *Table IV*.

These medians are substantially higher than those of the favorite selections of the small investor groups. They are much closer to the median prices of the investment company selections, but the prices are not as evenly spread through the various brackets. The concentration of prices above \$100 is not as great as in the investment companies' favorite selections, but the numbers in the lower price brackets are sparse.

Analyzing the Differences

While the figures show a definite leaning by the small investor groups towards lower priced shares, it is equally clear that these groups are also holding a substantial number of highly priced issues. Apparently many stocks at the higher levels have been attractive enough to overcome any preferences for lower unit prices. Going beyond this preliminary comparison, the next step is to analyze significant aspects of the similarities and differences in favorite investments.

Table II

Fifty Common Stocks Held by Largest Numbers of NYSE Monthly Investment Plans

(as of June 26, 1959)

Frequency distribution of closing prices

	June 30 1958	Dec. 31 1958	June 30 1959
\$ 10 - \$19.875	2	—	—
20 - 29.875	7	5	4
30 - 39.875	11	5	9
40 - 49.875	10	11	5
50 - 59.875	8	6	11
60 - 69.875	3	6	5
70 - 79.875	2	6	—
80 - 89.875	1	1	6
90 - 99.875	1	2	2
100 and Over	5	8	8
Median Price	43 5/8	55	55

Table III

Fifty Common Stocks Held by Largest Numbers of Investment Clubs

(as of Aug., 1959)

Frequency distribution of closing prices

	June 30 1958	Dec. 31 1958	June 30 1959
\$ 10 - \$19.875	3	—	—
20 - 29.875	10	8	5
30 - 39.875	17	7	10
40 - 49.875	8	15	9
50 - 59.875	6	5	9
60 - 69.875	2	4	6
70 - 79.875	1	6	—
80 - 89.875	2	—	3
90 - 99.875	—	2	3
100 and Over	1	3	5
Median Price	36	47 7/8	51 1/2

Table IV

**Fifty Largest U. S. Industrial Corporations
(Ranked by Total Assets as of Dec. 31, 1958)**

Frequency distribution of closing prices*

	June 30 1958	Dec. 31 1958	June 30 1959
\$ 10 - \$19.875	1	—	—
20 - 29.875	2	2	2
30 - 39.875	7	—	1
40 - 49.875	9	10	7
50 - 59.875	10	7	10
60 - 69.875	5	6	4
70 - 79.875	4	7	4
80 - 89.875	5	2	7
90 - 99.875	2	6	3
100 and Over	4	9	11
Median Price	52 1/2	66 1/4	74 5/8

*Excludes Western Electric Co., not publicly traded.

ANALYSIS OF SELECTIONS

The list of favorite selections of the investment companies reads like a recital of the largest and best-known companies in the United States. There is a scattering of utility companies, only one railway company, and the great majority are large industrials. In fact, 26 of the 50 selections appear on the list of the largest 50 United States industrial corporations. A number of the remaining selections are among the next 50 largest industrials. Thus, the investment companies have typically been selecting the largest corporations and the highest priced issues.

The small investor groups have also favored a substantial number of large corporations with highly priced shares. The three largest industrials, Standard Oil Co. (New Jersey), General Motors, and United States Steel, appear on all three lists of favorites. There are 13 corporations common to all three lists, and nine of these are included among the 50 largest industrial corporations. There are 22 selections of the investment companies which appear on one or both of the lists for the small investment groups. They include 15 of the 50 largest industrials. In fact, all selections on all three lists are well known nationally, and none could be considered small by any ordinary basis of measurement. *Table V* shows the 22 selections common to the invest-

ment company list and to one or both of the other lists, showing rank on each list and among the 50 largest U. S. industrial corporations, as well as prices of the shares on the three dates used in this study.

The comparison of medians under the categories presented in *Table V* indicates that to the extent that the small investor groups chose stocks also selected by the investment companies, they chose mainly higher priced stocks of the largest corporations. To the extent that they selected stocks not chosen by the investment companies, the small investor groups chose mainly lower priced securities. The medians of the 28 selections made by the investment companies but not by either of the other groups, do not vary significantly from the medians of the 22 common selections, nor from the medians of the entire favorite 50 lists of the investment companies. Thus, there does not seem to be any factor of unit price which is in any different for investment company selections, whether also selected by one of the smaller investor groups or not.

Highlights of Differences in Selections

In view of the institutional differences between the investment companies and the other investor groups involved, it probably should be considered remarkable that the three lists of favorite selections contain as many

Table V
Stocks Common to Favorite Fifties of Investment Companies and
MIP or Investment Clubs or Both (22)

Investment Companies	MIP	Investment Clubs	Size	Company	Closing Prices*		
					June 30 1958	Dec. 31 1958	June 30 1959
39	28	15	—	Aluminium, Ltd.	26.5	33.0	35.1
7	8	—	—	American Tel. & Tel.	179.0	225.0	80.2
10	32	16	12	Bethlehem Steel	41.3	52.3	60.0
14	26	—	8	du Pont	185.0	213.6	248.4
26	24	—	34	Eastman Kodak	111.0	144.2	85.7
16	2	35	11	General Electric	60.0	78.3	80.2
13	1	5	2	General Motors	39.5	49.4	51.3
6	30	—	4	Gulf Oil	116.1	126.0	110.0
1	10	24	18	International Business Mach.	369.0	535.0	448.0
20	25	34	—	Merck & Company	56.3	77.0	84.2
28	15	43	—	Minn. Mining & Mfg.	80.1	114.1	149.0
36	—	8	—	Parke, Davis	82.0	38.7	41.4
22	11	10	—	Pfizer, (Chas.)	70.4	103.5	37.4
46	7	6	15	Phillips Petroleum	43.2	48.2	47.7
44	9	29	43	Radio Corp. of America	35.1	47.7	68.1
33	29	13	31	Reynolds Metals	41.0	77.0	103.0
8	—	17	—	Royal Dutch Petroleum	44.7	47.7	42.4
9	21	—	10	Standard Oil Co. of Calif.	52.4	59.6	53.0
4	4	26	1	Standard Oil Co. (N.J.)	55.1	57.5	51.5
3	37	—	6	Texaco, Inc.	71.3	85.6	80.4
24	23	—	14	Union Carbide	92.4	126.1	143.4
2	31	49	3	U. S. Steel	65.2	96.2	99.4
Median					62.5	77.5	80.2

Median of remaining 28 selections of the Investment Companies, not selected by either of the other two groups

60.1 78.0 75.4

Median of remaining 28 selections of the MIP, Investment Clubs, or both, not selected by the Investment Companies

34.1 42.2 48.4

*Price fractions are in eighths.

Table VI

	Closing Price June 30, 1959
Amerada	86
Cities Service	56
Continental Oil	55.2
Louisiana Land	54.5
Shell	76.0
Sinclair	60.6
Socony Mobil	44.1
Standard of Indiana	46.3
Superior of California	1,755
Armco	75
Republic	76.1
Youngstown	129.4
Goodyear	145
Firesone	143
Goodrich	97.2
Median	76

common choices as they do. But it is to the detail of the differences in selections that further attention must be given to evaluate the significance of lower unit prices, or of any other factors which might provide a better explanation. Detailed study of the securities selected by the investment companies but not by the other groups, and vice versa, discloses the following highlights:

1. The investment company list included 15 oil stocks, compared to seven for the small investor lists.
2. The investment companies held six additional issues in steel and rubber. These were all high-priced shares.
3. The small investor groups held a total of nine utility stocks compared with six on the investment company lists. Both groups of utility stocks were relatively low in price. However, the prices of those held by the small investor groups tended to be lower than those held by the investment companies.
4. The small investor groups held 11 chemical stocks compared with five for the investment companies.
5. The small investor groups held 13 issues of electrical machinery, electronics, and related lines, compared with only four such issues held by the investment companies.
6. The small investor groups held shares of two food chains and two investment funds. All these were low-priced issues.
7. The remaining differences appear in miscellaneous issues, of which the investment companies held six very high-priced shares (median \$107.75), while the small investor groups held 16 issues which were mostly lower priced (median \$44.50).

The greater emphasis by the investment companies on oil, steel and rubber shares included 15 stocks, shown in *Table VI*, not among the favorites of the other groups.

The greater emphasis by the small investor groups on chemicals, electrical machinery and electronics, included 16 stocks, shown in *Table VII*, not among the Favorite Fifty of the investment companies.

In a comparison of miscellaneous remaining issues, *Table VIII* provides further explanation of unit price differences between the groups.

While shares of the largest and best-known corporations are favored more extremely by the large investment companies, the small investor groups also have made numerous selections among the higher priced stocks. It would appear that neither of the smaller investor groups has been prevented by high unit prices, from selecting stocks which they desired sufficiently. The lower median prices of the selections of the smaller investor groups seem to be associated with differences in preferences as to industry. The cases which account for the higher median prices of favorites of the investment companies mainly occur in certain more mature, basic industries, as indicated. The lower priced shares favored by the two small investor groups are chiefly in certain lines which are usually considered as younger and as having prospects for greater future growth.

It is usually thought to be one of the advantages of the investment club that it enables the handling of larger unit-priced stocks than an individual small investor could manage. Thus, we might expect the favorite selections of the investment clubs to tend towards higher prices than the favorites of the monthly investment plans, which are essentially individual purchasers. Actually, the reverse is true. The median prices of the favorite 50 selections of the monthly investment plans ranged several dollars higher than those of the favorite 50 of the investment clubs. Also, the favorite 50 of the investment companies include 20 from the favorite 50 of the monthly investment plans, compared with only 15 of the favorite selections of the investment clubs. Perhaps this indicates that individuals who undertake monthly investment plans are being advised by brokers, and that such advice naturally leans towards the largest, best-known companies, as a matter of caution and conservatism. In other words, it appears that more conservative selections by MIP members, and more venturesome investing by the investment clubs,

Table VII

	Closing Price June 30, 1959
Dow	89.7
American Cyanamid	61.4
Monsanto	53.2
Olin Mathieson	54.7
Schering	62.3
American Marietta	44
Thiokol	54.4
Raytheon	58.4
General Dynamics	54.3
General Telephone and Electric	69.6
International Tel. & Tel.	39.2
Burroughs	37.2
Beckman Instruments	60.6
Sperry Rand	25.6
Texas Instruments	145
Westinghouse	94.4
Median	56.4

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Table VIII

	Closing Price June 30, 1959
Investment Companies	
Caterpillar Tractor	110.4
International Nickel	97.1
International Paper	120
National Lead	124.5
Southern Railway	59
U. S. Gypsum	105
Median	107.6
Small Investor Groups	
American Can	44.6
Grace	48.4
Northern Pacific	55
Aeroquip	30.4
Outboard Marine	36.7
Excello	43.2
National Distillers	30.2
North American Aviation	44.2
Brunswick	100.4
American Machine & Foundry	94.4
Sunray	25.5
Gerber	58
St. Regis Paper	49.6
American Airlines	30.4
Pepsi Cola	28.3
Sears, Roebuck	48.4
Median	44.4

are more potent factors in the selections than the question of unit price.

Other NYSE Price Preferences Data

The New York Stock Exchange has published its view that reduction of a very high dollar price by a stock split may result in broadening the public ownership of the stock and improvement of the market.⁴ The NYSE has stated that its studies tend to indicate that, as a general matter, the most favorable price level for listed stocks is in the range of 18 to 25. The data presented herein show that the share pricing philosophy of large industrial corporations is far out of tune with this viewpoint.

Early in 1958, the NYSE polled its readership of *The Exchange* and a total of 13,587 individuals expressed their preferences as to unit share prices. The results were as follows:⁵

Share Price Preferences, Readers of The Exchange, 1958	
Under \$10	502
\$ 10 - \$24.875	2,902
25 - 39.875	5,728
40 - 59.875	3,615
60 - 99.875	524
100 and Over	816
	13,587

The data indicate a preference for moderate share prices, although not necessarily for figures as low as

those advocated by the NYSE. There is no way of measuring the significance of this preference in making investment selections.⁶

Another picture of interest is seen in the statistics of volume of trading in odd lots on the NYSE, over the years, compared with the volume of round lot trading. Data back to 1937 are shown in *Table IX*.

Table IX

Year	Shares Traded (millions)	Odd Lots*	Percentage Relationship
1937	448.6	132.5	29.5
1938	326.3	95.3	29.2
1939	286.1	76.4	26.7
1940	225.2	56.6	25.1
1941	183.5	44.5	24.2
1942	133.9	31.6	23.6
1943	305.0	54.4	17.8
1944	285.4	54.9	19.2
1945	417.7	82.9	19.8
1946	401.9	100.7	25.1
1947	270.6	64.7	23.9
1948	323.9	70.7	21.8
1949	298.2	58.1	19.5
1950	565.1	97.2	17.2
1951	480.0	90.1	18.8
1952	362.4	74.4	20.5
1953	374.3	72.8	19.4
1954	599.9	105.9	17.7
1955	688.0	124.1	18.0
1956	585.3	117.6	20.1
1957	595.3	122.5	20.6
1958	788.9	134.8	17.1

Source: NYSE Fact Book, 1959.

The volume of odd-lot trading has been higher in recent years, which may be a reflection of efforts by the NYSE to attract more small investors towards share ownership. The odd-lot volume declined during periods of declining prices; i.e., 1937 to 1942, and 1946 to 1949, and has tended to rise during periods of rising stock prices. But the percentage relationship of odd-lot to round-lot volume has not been as high during recent years as it was 20 years ago. This does not indicate growth in importance of the odd-lot trader as a factor in total trading volume. The statistics do not throw any light on the question of whether the growth of small investor trading would have been greater, if it had been facilitated by lower unit prices for shares of the leading industrial corporations.

CONCLUSION

The difficulty of drawing conclusions regarding the possible effects of share price levels on the selection of stocks by small investors is obvious. The share price is only one among various factors involved in investment selections by small investors. From the point of view of gaining appreciation only, it would not seem to make much difference at what level a stock purchase is made, provided the stock rises satisfactorily thereafter. But it would not be wise to rule out the possibility that many small investors may have a preference for dealing in stocks priced low enough for round-lot transactions.

The question involved, of course, is not mainly one of whether the small investor would prefer to deal in 100-share lots. Probably it would never be practical to reduce share prices generally to such a low level that the great majority of small investors, with only small amounts available for investment at any one time, could regularly deal in 100-share lots. Probably the chief question is whether the majority of share prices of the largest and best-established corporations are so high that they affect investment decisions of small investors, by forcing them to deal in very small numbers of such shares, often in the area of less than ten shares.

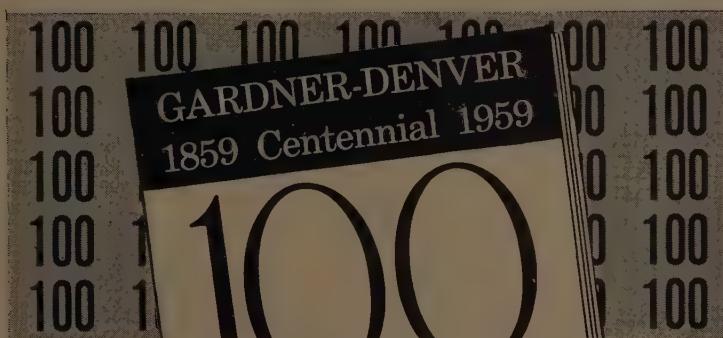
At the same time, it would be a mistake to assume that there are serious difficulties or disadvantages to the small investor in purchasing odd lots. Apart from some well-known, technical differences and minor additional charges, the NYSE machinery for odd-lot purchases seems to function smoothly and efficiently. However, even if the preference were purely a matter of taste, corporations desiring to enlarge their shareholder lists would do well to keep it in mind.

The analysis presented here has shown that both groups of small investors studied purchased high-priced, blue-chip industrial shares quite freely. Obviously, a

stock such as Superior Oil of California, priced at \$1,755 per share, at June 30, 1959, which is one of the favorites of large investment companies, does not appear among the 50 favorites of either of the small investor groups studied. This causes no surprise. However, IBM, rarely below \$300 and sometimes above \$500 per share, appears among the favorites of both small investor groups.

An Area Difficult to Analyze

If high-grade common shares, selling frequently in the range of \$50 to \$100 or even higher, were available at half or even a third of those figures, the question is whether the small investor groups studied would have expanded the number of issues held, or merely would have bought a larger number of shares of substantially the same issues. It may be that the lack of moderately priced shares among the largest corporations has exerted some stifling effect on that type of selection by small investors. Other related questions are whether these groups would have been induced by lower share prices to make larger total investments in common stocks than they have made, or whether additional numbers of small investors, now discouraged entirely from investing by



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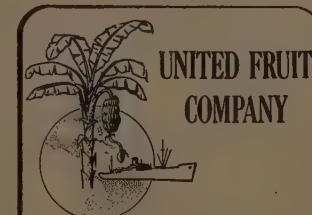
50¢ per share on Common Stock.
28 1/4¢ per share on the 4.6% Cumulative Preferred Stock.

Common Stock dividends are payable April 15, 1960 to stockholders of record at the close of business March 25, 1960.

Dividends on the 4.6% Cumulative \$25 par value Preferred Stock are payable June 15, 1960 to stockholders of record May 31, 1960.

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Vice President and Secretary

March 15, 1960
Bogota, New Jersey



A dividend of twenty-five cents per share on the capital stock of this Company has been declared payable May 2, 1960, to shareholders of record April 8, 1960.

EDWARD D. TOLAND, Jr.
Secretary and Treasurer
Boston, Mass., March 28, 1960

the sight of high share prices for corporations whose names they recognize and respect, would be attracted into the market. This is a challenging area where research is difficult and the temptation is great to generalize without supporting evidence.

The evidence disclosed by this study, while admittedly fragmentary, indicates that the motives which have led small investors of the monthly improvement plans, and investment clubs in the direction of certain lower priced shares, lie largely in the nature of the companies and industries involved. But the availability of such shares at unit prices generally lower than those for the largest and best-established industrial corporations may have been an additional inducement. If the industries which have proved most attractive to these small investor groups had been characterized by high unit share prices, we can only conjecture as to what extent this would have discouraged the selections. If the shares of the largest corporations were generally available at lower unit prices, it may be that more of these issues would be found among the favorite selections of the small investor groups. Or a larger total volume of small investor purchases might be stimulated, particularly among the many people who prefer investment in the best-known names and time-tested issues of industry.

Since the study indicates the probability that many small investors have an interest in the more venturesome types of industries represented in the favorite selections studied, management in these industries may be able to facilitate investment by the small buyer by seeing that share prices do not remain too high for long periods. Large corporations in other lines with high-priced shares may also find it desirable to facilitate such investment. This can be accomplished, when circumstances are otherwise appropriate, by systematic use of stock dividends and stock splits in management of the capital structure. The large potential army of small investors should warrant the interest of large corporations as prospective shareholders. Advantages would accrue from a broadened source of equity capital; from resulting influence on preferences as consumers; and perhaps from an increased appreciation of the ownership viewpoint among those now entirely swayed by the economics of the employee relationship.

Stock Dividends & Stock Splits

A good deal of inconclusive argument has been generated in the financial world regarding the usefulness and desirability of stock dividends and stock splits. At one extreme are those who emphasize that creation of additional shares through these devices merely cuts the same pie in smaller slices, accomplishing nothing desirable and creating inconvenience and cost in accounting for or disposing of fractional shares. At the other extreme are those who emphasize the pleasure to the shareholder in receiving additional shares, which often represent a concurrent enhancement of total market value and dividend return, and which, if desired, can be sold without reducing the original number of shares

held and with capital gain tax on the proceeds. Extensive statistical exercises have been performed in attempts to measure the effects of stock dividends and stock splits on share values and the results used to support conclusions which sometimes pass very lightly over the possible benefits to be derived from lower unit prices.

The wide variation among corporations in action regarding stock splits and stock dividends seems to indicate that policy is often decided by executive whim or taste, not supported by any sound philosophy of capital structure management based on the corporation's circumstances and requirements. Aside from the question of other merits, in effective use of the stock dividend and stock split, the benefits of managing the share price within a modest range can be an important value to be derived from use of these devices. Large corporations, whose shares do not appear among the favorites of small investors, may find the results of this research helpful in putting the share price aspects of broader share distribution into their proper perspective. This is an intriguing, if an enigmatic area of corporate financial management and worth-while benefits may be derived through sound judgment in capital structure decisions.

Take a Look at High Prices

To answer the question posed in the title to this paper, the small investor is by no means discouraged by the high prices common among shares of the big, well-known corporations. He is making a creditable showing on the shareholder lists of these companies. But when he has been polled, with respect to share prices, he has indicated a preference for moderate levels. Corporate management would do well to take a hard look at the current high share prices, with full awareness of the practical advantages of facilitating the rising interest in share ownership by a multitude of individuals who are investors, consumers and employees.

Footnotes

1. The National Association of Investment Clubs reports a membership of 4,783 clubs, comprising more than 67,000 individuals, as of August, 1959. During the first five years of the Monthly Investment Plans (1954-58), there were 163,000 plans started. Of these, 82,400 had been completed or terminated and 80,600 were still in force at the end of 1958. (*The Exchange*, published by NYSE, Vol. XX, No. 3, March, 1959, p. 11)

2. Shares purchased under all Monthly Investment Plans in the first five years (1954-58) aggregate 2,850,000 and the amount of money invested totals \$112,600,000. This is an average of about \$39.50 per share. (*The Exchange*, Vol. XX, No. 3, March, 1959, p. 11)

3. These are from the Fortune list of large corporations, ranked by total assets employed as of December 31, 1958.

4. NYSE Company Manual, p. A-255.

5. *The Exchange*, Vol. XIX, No. 7, July, 1958, p. 18.

6. The National Association of Investment Clubs has not polled its membership on this subject. However, the matter of high share prices in relation to the sums available for investment has been mentioned by members in their discussions with the Association.

Appendix

The Favorite Fifty Stocks of Investment Companies

(as of December 31, 1958)

Stock	Value (millions)	Closing Prices*		
		June 30 1958	Dec. 31 1958	June 30 1959
1. Int'l Bus. Machines	268.0	369.0	535.0	448.0
2. U. S. Steel	234.4	65.2	96.2	99.4
3. Texaco	220.0	71.3	85.6	80.4
4. Standard Oil (N. J.)	199.4	55.1	57.5	51.5
5. Goodyear Tire & Rubber	147.4	82.1	121.0	145.0
6. Gulf Oil	139.7	116.1	126.0	110.0
7. American Tel. & Tel.	133.1	179.0	225.0	80.2
8. Royal Dutch Petroleum	127.9	44.7	47.7	42.4
9. Standard Oil (Cal.)	127.1	52.4	59.6	53.0
10. Bethlehem Steel	121.8	41.3	52.3	56.0
11. Republic Steel	121.3	47.2	75.0	76.1
12. International Paper	120.7	98.2	117.5	120.0
13. General Motors	120.6	39.5	49.4	51.3
14. du Pont	115.4	185.0	213.6	248.4
15. Amerada Petroleum	106.4	104.4	103.1	86.0
16. General Electric	106.2	60.0	78.3	80.2
17. Armco Steel	99.7	50.2	66.2	75.0
18. Firestone Tire & Rubber	97.2	88.3	132.0	143.0
19. Continental Oil	96.8	52.2	63.1	55.2
20. Merck & Co.	75.1	56.3	77.0	84.2
21. Superior Oil Co. (Cal.)	74.1	1600.0	1755.0	1755.0
22. Pfizer, (Chas.) & Co.	72.7	70.4	103.5	37.4
23. Texas Utilities	71.9	49.6	65.2	69.0
24. Union Carbide	71.8	92.4	126.1	143.4
25. Shell Oil	68.7	76.4	85.2	76.0
26. Eastman Kodak	68.4	111.0	144.2	85.7
27. Int'l Nickel Co. of Can.	68.3	79.3	88.2	97.1
28. Minn. Mining & Mfg.	67.1	80.1	114.1	149.0
29. Florida Pr. & Light Co.	66.2	68.2	90.2	46.5
30. U. S. Gypsum	64.9	79.2	98.0	105.0
31. Central & So. West Corp.	64.7	48.4	58.6	62.7
32. Sinclair Oil	64.4	60.0	65.6	60.6
33. Reynolds Metals	64.3	41.0	77.0	103.0
34. Standard Oil (Ind.)	63.8	46.0	47.2	46.3
35. Southern Co. (The)	62.4	31.3	37.3	37.1
36. Parke, Davis & Co.	60.9	82.0	38.7	41.4
37. Southern Railway	60.4	40.6	55.2	59.0
38. National Lead	60.0	94.0	111.6	124.5
39. Aluminium, Ltd.	59.4	26.5	33.0	35.1
40. La. Land & Exploration	58.7	54.3	56.1	54.5
41. Socony Mobil Oil	58.4	51.4	48.3	44.1
42. Youngstown Sh. & Tube	57.6	88.6	117.0	129.4
43. General Pub. Util. Corp.	57.2	43.4	49.7	48.5
44. Radio Corp. of America	55.2	35.1	47.7	68.1
45. Cities Service	53.6	56.6	63.3	56.0
46. Phillips Petroleum	53.4	43.2	48.2	47.7
47. Allied Chemical	53.2	77.6	93.5	116.6
48. Goodrich (B. F.)	52.4	60.2	81.0	97.2
49. Caterpillar Tractor	50.4	63.0	89.0	110.4
50. American Elec. Power	49.9	42.7	54.1	48.6

*Price fractions are in eighths.

Source: Investment Companies, 1959, Arthur Wiesenberger and Company, New York, p. 362.

Fifty Largest U.S. Industrial Corporations

Ranked by Total Assets

(as of December 31, 1958)

Name of Stock	Closing Prices*		
	June 30 1958	Dec. 31 1958	June 30 1959
1. Standard Oil (N. J.)	55.1	57.5	51.5
2. General Motors	39.5	49.4	51.3
3. U. S. Steel	65.2	96.2	99.4
4. Gulf Oil	116.1	126.0	110.0
5. Socony Mobil Oil	51.4	48.3	44.1
6. Texaco	71.3	85.6	80.4
7. Ford Motor	41.4	50.3	74.5
8. du Pont	185.0	213.6	248.4
9. Standard Oil (Ind.)	46.0	47.2	46.3
10. Standard Oil (Cal.)	52.4	59.6	53.0
11. General Electric	60.0	78.3	80.2
12. Bethlehem Steel	41.3	52.3	56.0
13. Shell Oil	76.4	85.2	76.0
14. Union Carbide	92.4	126.1	143.4
15. Phillips Petroleum	43.2	48.2	47.7
16. Sinclair Oil	60.0	65.6	60.6
17. Westinghouse Electric	57.2	73.1	94.4
18. Int'l Business Machines	369.0	535.0	448.0
19. Chrysler	47.7	51.2	68.3
20. Western Electric	**	**	**
21. Aluminum Co. of America	69.7	93.3	100.4
22. Cities Service	56.6	63.3	56.0
23. Anaconda	46.0	60.3	64.4
24. International Harvester	34.3	41.6	52.0
25. Republic Steel	47.2	75.0	76.1
26. Goodyear Tire & Rubber	82.1	121.0	145.0
27. Armco Steel	50.2	66.2	75.0
28. International Paper	98.2	117.5	120.0
29. Dow Chemical	55.1	76.4	89.7
30. International Tel. & Tel.	38.2	62.7	39.2
31. Reynolds Metals	41.0	77.0	103.0
32. American Can	49.2	50.2	44.6
33. Kennecott Copper	89.2	98.4	104.5
34. Eastman Kodak	111.0	144.2	85.7
35. Tidewater Oil	24.0	24.7	25.1
36. Procter & Gamble	61.3	74.2	81.5
37. Jones & Laughlin	39.7	60.2	80.1
38. American Tobacco	88.2	95.5	96.4
39. Olin Mathieson Chemical	33.4	44.7	54.7
40. Firestone Tire & Rubber	88.3	132.0	143.0
41. Atlantic Refining	39.0	44.5	45.3
42. Kaiser Aluminum & Chemical	25.6	42.6	57.0
43. Radio Corporation of America	35.1	47.7	68.1
44. Allied Chemical	77.6	93.5	116.6
45. Reynolds (R. J.) Tobacco	75.1	90.6	54.4
46. Sperry Rand	19.0	24.5	25.6
47. Inland Steel	89.3	144.5	52.4
48. National Steel	51.3	75.6	87.2
49. Continental Can	50.3	57.7	47.3
50. Union Oil of California	50.2	46.2	48.1

*Price fractions are in eighths.

**Shares not publicly traded.

Source: Fortune, Vol. LX, No. 1, July, 1959.

(Continued on next page)

National Association of Investment Clubs
Fifty Securities Held by
Largest Number of Member Clubs
(as of August, 1959)

Name of Stock	Number of Clubs Holding	Closing Prices*		
		June 30 1958	Dec. 31 1958	June 30 1959
1. Sperry Rand	830	19.0	24.5	25.6
2. Monsanto	738	31.4	39.3	53.2
3. General Dynamics	723	57.0	64.5	54.3
4. Olin Mathieson	661	33.4	44.7	54.7
5. General Motors	561	39.5	49.4	51.3
6. Phillips Petroleum	484	43.2	48.2	47.7
7. American Marietta	446	34.0†	40.1†	44.0†
8. Parke, Davis & Co.	438	82.0	38.7	41.4
9. General Tel. & Elec.	431	49.7	61.4	69.6
10. Pfizer, (Chas.) & Co.	385	70.4	103.5	37.4
11. Aeroquip	377	18.4	24.0	30.4
12. American Cyanamid	346	44.0	51.5	61.4
13. Reynolds Metals	338	41.0	77.0	103.0
14. Schering	338	37.3	56.1	62.3
15. Aluminium, Ltd.	331	26.5	33.0	35.1
16. Bethlehem Steel	331	41.3	52.3	56.0
17. Royal Dutch Pet.	331	44.7	47.7	42.4
18. El Paso Natural Gas	315	32.7	36.0	32.1
19. Safeway Stores	307	30.6	41.0	36.6
20. Westinghouse Electric	300	57.2	73.1	94.4
21. Pepsi-Cola	300	24.1	26.5	28.3
22. Outboard Marine	292	25.1	34.1	36.7
23. American Airlines	285	20.0	24.2	30.4
24. Int'l Bus. Machines	284	369.0	535.0	448.0
25. Excello	277	35.1	42.1	43.2
26. Standard Oil (N. J.)	275	55.1	57.5	51.5
27. Texas Instruments	274	39.2	73.5	145.0
28. Tenn. Gas. Trans.	272	28.6	35.6	33.1
29. Radio Corp. of America	269	35.1	47.7	68.1
30. Dow Chemical	268	55.1	76.4	89.7
31. Int'l Tel. & Tel.	254	38.2	62.7	39.2
32. National Distillers	253	24.5	29.5	30.2
33. Winn Dixie Stores	246	34.7	44.6	42.0
34. Merck & Co.	238	56.3	77.0	84.2
35. General Electric	236	60.0	78.3	80.2
36. North Amer. Aviation	223	32.7	43.4	44.2
37. Kaiser Alum. & Chem.	215	25.6	42.6	57.0
38. Brunswick Balke Coll.	215	43.7	48.2	100.4
39. Arkansas Louisiana Gas	208	35.0	48.1	65.2
40. Burroughs	207	34.1	41.0	37.2
41. Thiokol Chemical	192	41.4	97.2	54.4
42. Amer. Mach. & Fdry.	190	36.7	54.2	94.4
43. Minn. Mining & Mfg.	189	80.1	114.1	149.0
44. Sunray Mid-Cont. Oil	185	25.3	27.5	25.5
45. Gerber Products	184	51.4	64.7	58.0
46. St. Regis Paper	184	34.0	44.6	49.6
47. Columbia Gas	177	19.4	22.1	21.7
48. Sears, Roebuck	175	29.5	39.6	48.4
49. U. S. Steel	169	65.2	96.2	99.4
50. Beckman Instruments	161	20.6	37.4	60.6

*Price fractions are in eighths.

†Bid (over-the-counter market).

Source: National Association of Investment Clubs (NAIC Survey, 1959).

New York Stock Exchange
Fifty Most Popular Stocks
of the Monthly Investment Plans
(as of June 26, 1959)

Name of Stock	Number of Plans Holding	Closing Prices*		
		June 30 1958	Dec. 31 1958	June 30 1959
1. General Motors	4,459	39.5	49.4	51.3
2. General Electric	4,079	60.0	78.3	80.2
3. Dow Chemical	3,749	55.1	76.4	89.7
4. Standard Oil (N. J.)	3,088	55.1	57.5	51.5
5. Tri-Continental Corp.	2,762	34.2	40.3	53.0
6. Sperry Rand	2,287	19.0	24.5	25.6
7. Phillips Petroleum	2,106	43.2	48.2	47.7
8. American Tel. & Tel.	1,877	179.0	225.0	80.2
9. Radio Corp. of America	1,794	35.1	47.7	68.1
10. Int'l Bus. Machines	1,753	369.0	535.0	448.0
11. Pfizer, (Chas.) & Co.	1,609	70.4	103.5	37.4
12. Safeway Stores	1,566	30.6	41.0	36.6
13. Sears, Roebuck	1,310	29.5	39.6	48.4
14. Monsanto	1,216	31.4	39.3	53.2
15. Minn. Mining & Mfg.	1,189	80.1	114.1	149.0
16. General Tel. & Elec.	1,128	49.7	61.4	69.6
17. General Dynamics	1,113	57.0	64.5	54.3
18. American Cyanamid	1,078	44.0	51.5	61.4
19. Lehman	1,065	25.0	30.5	29.4
20. Olin Mathieson	1,000	33.4	44.7	54.7
21. Standard Oil (Cal.)	999	52.4	59.6	53.0
22. Columbia Gas System	971	19.4	22.1	21.7
23. Union Carbide	943	92.4	126.1	143.4
24. Eastman Kodak	863	111.0	144.2	85.7
25. Merck & Co.	861	56.3	77.0	84.2
26. du Pont	840	185.0	213.6	248.4
27. Westinghouse Electric	789	57.2	73.1	94.4
28. Aluminium, Ltd.	744	26.5	33.0	35.1
29. Reynolds Metals	741	41.0	77.0	103.0
30. Gulf Oil	736	116.1	126.0	110.0
31. U. S. Steel	659	65.2	96.2	99.4
32. Bethlehem Steel	625	41.3	52.3	56.0
33. American Airlines	589	20.0	24.2	30.4
34. American Can	557	49.2	50.2	44.6
35. Aluminum Co. of Amer.	545	69.7	93.3	100.4
36. United Gas Corp.	509	31.4	40.1	35.0
37. Texaco	464	71.3	85.6	80.4
38. El Paso Natural Gas	458	32.7	36.0	32.1
39. Consolidated Edison	447	55.3	65.0	62.3
40. Kaiser Alum. & Chem.	438	25.6	42.6	57.0
41. International Tel. & Tel.	435	38.2	62.7	39.2
42. Pacific Gas & Electric	420	56.6	63.4	60.2
43. United Fruit	407	48.7	41.5	33.5
44. Pepsi-Cola	403	24.1	26.5	28.3
45. Texas Instruments	397	39.2	73.5	145.0
46. Raytheon	389	33.6	65.0	58.4
47. Detroit Edison	383	40.1	42.3	42.6
48. Grace (W.R.) & Co.	377	46.2	43.6	48.4
49. Long Island Lighting	377	26.3	29.7	33.2
50. Northern Pacific Ry.	369	40.3	50.0	55.0

*Price fractions are in eighths.

Source: Department of Research and Statistics, New York Stock Exchange.

THE HERTZ CORPORATION

The Hertz Corporation enjoyed its most successful year in 1959. Revenues, net income and per-share earnings rose to the highest levels in its history. After provision for Federal Income Taxes, net income for 1959 showed an increase of 66.0% on an increase in consolidated revenues of 20.5%.

A number of factors contributed to the attainment of the year's favorable results, which were achieved principally through internal growth rather than from the acquisition of new operations. Among these factors were the growing demand for the rental and leasing service being offered by the Corporation, improved operating efficiency, and increased advertising and sales promotion.

THE HERTZ CORPORATION AND SUBSIDIARIES—FINANCIAL HIGHLIGHTS

	1959	1958
Operating Revenues	\$109,168,992	\$90,558,749
Equity Capital	\$34,051,510	\$30,308,109
Net Income Before Tax	\$11,264,268	\$6,727,831
Ratio to Operating Revenues	10.3%	7.4%
Ratio to Equity Capital	33.1%	22.2%
Net Income After Tax	\$7,884,268	\$4,747,831
Ratio to Operating Revenues	7.2%	5.2%
Ratio to Equity Capital	23.2%	15.7%
Number of Shares Outstanding	3,284,749	3,227,111*
Earnings per Share	\$2.40	\$1.47*
Cash Dividends	\$1.15	\$0.85*
Stock Distribution	—	50%

AVERAGE VEHICLES OWNED

Rent A Car	14,598	12,994
Truck Leasing	15,136	14,416
Car Leasing	8,156	6,845
Total Vehicles	37,890	34,255

*After giving effect to 1958 year-end 50% stock distribution.

Operations of Atlantic National Insurance Company and of Hertz American Express International, Ltd. are not included in consolidated results in this report.

DIVISIONS AND PRINCIPAL SUBSIDIARIES:

RENT A CAR DIVISION	CAR LEASING DIVISION
EASTERN TRUCK LEASING DIVISION	HERTZ EQUIPMENT LEASING CORPORATION
CENTRAL TRUCK LEASING DIVISION	ATLANTIC NATIONAL INSURANCE COMPANY
HERTZ AMERICAN EXPRESS INTERNATIONAL, LTD. (Jointly owned with American Express Company)	

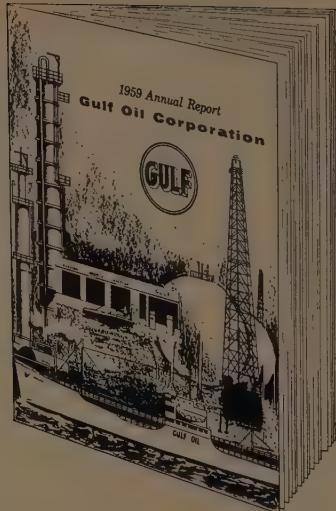
For copies of the Annual Report, write:
Treasurer, The Hertz Corporation,
218 South Wabash Avenue,
Chicago 4, Illinois.

HERTZ

®

1949-1959

A Decade of Record Progress at GULF OIL



Results of Gulf Oil's world-wide operations in 1959 reflected continued over-all progress. A comparison of the company's major financial and operational activities in 1959 and 1949 emphasizes Gulf's rapid growth over the past decade.

Net income in 1959 was \$290,467,000 — nearly triple the company's net income in 1949. Sales and other operating revenues totaled \$3,170,847,000, compared to \$1,123,885,000 in 1949. Based on current shares, cash dividends increased from 45¢ per share to 97¢ during the ten-year period. Daily average barrels of net crude oil and condensate produced rose from 405,727 barrels in 1949 to 1,304,183 in 1959.

Financial and operational highlights for 1949 and 1959 are presented here.

A copy of Gulf's report will be sent upon request to Public Relations Department, Gulf Oil Corporation, P. O. Box 1166, Pittsburgh 30, Pa.

CONSOLIDATED FINANCIAL DATA

	<u>1959</u>	<u>1949</u>
Net Income	\$ 290,467,000	\$ 100,877,000
Net Income Per Share (Adjusted for all stock dividends and stock splits).....	\$2.90	\$1.07
Cash Dividends	\$ 96,876,000	\$ 42,545,000
Cash Dividends Per Share (Adjusted for all stock dividends and stock splits).....	\$.97	\$.45
Stock Dividends	3%	—
Total Assets	\$3,576,318,000	\$1,215,891,000
Working Capital (Current assets less current liabilities)	\$ 690,656,000	\$ 205,848,000
Sales and Other Operating Revenues	\$3,170,847,000	\$1,123,885,000
Capital Expenditures	\$ 335,771,000	\$ 168,421,000
Depreciation, Depletion, etc.	\$ 260,845,000	\$ 80,488,000

OPERATIONS DATA-DAILY AVERAGE BARRELS (*)

	<u>1959</u>	<u>1949</u>
Net Crude Oil and Condensate Produced	1,304,183	405,727
Net Natural Gas Liquids Produced	40,731	6,825
Crude Oil Processed at Refineries	685,101	381,443
Refined Products Sold	828,110	399,681
Natural Gas Liquids Sold	124,638	7,097

(*) Operations data include Gulf's equity in all operations in which Company has an interest.

The Case for Mutual Fund Management

by John B. Armstrong

EXPERIENCED PROFESSIONAL MANAGEMENT is said to be one of the primary advantages that mutual funds offer to the average investor.¹ There are many ways of evaluating the results achieved by mutual fund managements. Some studies provide a highly favorable picture of these results. Others have indicated results which are not so favorable. The purpose of this article is to analyze the long-term performance records of leading mutual funds, in an effort to appraise the extent to which mutual fund shareholders have benefitted from the accomplishments of the fund managers.

Leading common stock funds have shown better long-term results than the Dow-Jones Industrial Average. The most typical method of appraising a mutual fund's results is by comparing the percentage change in its net asset value per share (adjusted for income dividends and capital gains distributions paid) over any given period, with a similar figure for the Dow-Jones Industrial Average.² The method is recommended by its simplicity; the comparison is recommended by the fact that the Dow-Jones Industrial Average is surely the index of stock market behavior with the greatest following among the investing public (although perhaps few investors fully understand it).

It is apparent that the conclusions derived from this method of comparison will vary with (a) the mutual fund selected, and (b) the period of time chosen. Therefore, as a preliminary observation, the following two principles appear necessary for a fair comparison: First, the mutual fund portfolio should bear some similarity to the Dow-Jones Industrial Average. In other words, the Fund's portfolio should be composed primarily of a diversified list of common stocks. The common stock funds alone, not the bond or preferred stock funds, the industry type funds, nor the balanced funds (composed of varying percentages of common stocks, preferred stocks and bonds), should be compared with a common stock market average—if an evaluation of the fund's management is sought. Second, the period of time for the comparison should be sufficiently long to cover a wide variety of economic and stock market conditions, in order to make the test a sound one. Such a period will also serve to limit the effect of short-term circumstances which might have an unwarranted effect (favorable or unfavorable) on the performance of either the fund or the Average.

Table I utilizes both of these principles. It compares

1. Footnotes are at end of article.

John B. Armstrong is the pen-name of a man who has spent many years in the security field and in the study and analysis of mutual funds. A graduate of Princeton University, his A.B. thesis was entitled "Economic Role of the Investment Company."

the results of the four oldest diversified common stock funds with the results of the Dow-Jones Industrial Average from Jan. 1, 1930, to Dec. 31, 1959. These four pioneer mutual funds are also among the largest in the industry today, accounting for about 15% of the assets of all mutual funds. The 30-year period, in addition to covering all or most of the record of each fund, was, to say the least, a challenging one—including the depression of the early 30's, World War II and Korea, inflation, and political and economic change on perhaps an unparalleled scale. The total percentage gain (including both appreciation and income) of each investment in this period was as indicated in Table I.

Table I

	% Appreciation	% Income	Total % Increase ³
Fund A	+ 348%	205%	+ 553%
Fund B	+ 233%	109%	+ 342%
Fund C	+ 157%	114%	+ 271%
Fund D	+ 478%	193%	+ 671%
Average	+ 304%	155%	+ 459%
Dow-Jones Industrial Average	+ 174%	133%	+ 307%

Table I shows that three of the four funds provided a greater total percentage increase than the Dow-Jones Average, and the average performance of the funds was 152 percentage points greater. Certainly this is a significant indication of good long-term performance relative to the Average. It should, of course, be recognized that common stock prices in general were substantially higher at the end of this period than the beginning; that the total percentages include income as well as appreciation; that these funds differ in their investment objectives; and that the figures can not be considered as a representation of future results.

The four funds in Table I were selected in order to provide a long-term comparison, and were the only major common stock funds in business throughout the entire period. That these funds provide a fair representation of the performance of common stock mutual funds in general is indicated by the fact that their average performance over the past five years has been generally comparable to that of the average common stock mutual fund. According to Arthur Wiesenberger & Co.—the New York Stock Exchange firm well-known for its authoritative statistical comparisons of mutual funds—and publishers of the widely used "Investment Companies" manual, the average performance (computed as in Table I) of 55 common stock funds with unrestricted investment policies over the past five years (1955-1959) was virtually identical with the average of the four funds shown in the foregoing comparison.

The foregoing figures have been presented to show

Table II

	Volatility
Fund A	0.80
Fund B	1.11
Fund C	0.99
Fund D	0.76
Average	0.91

Table II shows that these four funds had an average fluctuation only about 91% as great as the Dow (i.e., they were 9% less volatile). Since the volatility period (1950-1956) is admittedly a short segment of the 30-year period shown earlier, the two sets of figures cannot properly be combined or integrated. However, they indicate a probability that the long-term mutual fund performance results shown in *Table I* are even more outstanding on a relative basis (i.e., related to volatility) than on an absolute basis.

That common stock mutual funds can successfully meet the test of "outperforming the averages." This does not mean that the test is a fair one, however. The purposes of market averages and of mutual funds are by no means the same. On the one hand, a market average is a representative cross-section of stocks, designed to reflect the behavior of the market. A mutual fund, on the other hand, is an integrated investment program, designed to achieve a specific investment objective, or series of objectives. Thus, it may well be immaterial to show that a given fund does or does not outperform the market averages.

A mutual fund seeks certain definite mutual goals: long-term growth of capital, capital gains, conservation of capital, current income, future income, or perhaps some combination of two or more of these goals. Thus, in appraising the results of the fund's management, the Financial Analyst should attempt to ascertain whether the fund has achieved its stated objectives, rather than whether or not it has outperformed the Dow-Jones (or any other) Average. The principal weakness of this approach to performance via objectives is that mutual fund objectives cannot be stated with the precision that will enable the Analyst to differentiate between for example, a slightly more aggressive fund and a slightly more conservative fund. For this reason, an auxiliary statistical tool may well be required in order to relate a mutual fund's performance to its objectives and policies. One of the most significant tools of this character is the measurement of a fund's "volatility."

Volatility simply measures the percentage increases and decreases in a fund's asset value per share in rising and falling markets, relative to the percentage changes in common stocks in general. Arthur Wiesenberger & Co. used the Dow-Jones Industrial Average for a series of such volatility measurements. The Wiesenberger firm computed the percentage rise and fall of major mutual funds during each of eight stock market rises, and each of eight stock market declines, from the June, 1950, market high to Dec. 31, 1956. These changes were then related to the percentage rises and falls of the Dow-Jones Industrial Average in this period.⁴ If a fund rose and fell exactly the same amount as the Dow, it received a volatility rating of 1.00, for example. The average volatility of 64 common stock funds tabulated by Wiesenberger was 0.89, and 52 of the 64 common stock mutual funds for which volatility figures were furnished had a rating of below 1.00. We would therefore expect these funds to increase less than the Dow in a rising market and decrease less in a falling market. In short, the volatility ratings demonstrated statistically that common stock mutual funds as a group were less volatile (i.e., more conservative) than the Average, and hence should not automatically be compared with it.⁵

Applying the volatility figures shown in Wiesenberger's "Investment Companies—1957" to the four funds whose long-term performance achievements were shown in *Table I*, it will be noted that only one of these funds had a higher volatility than the Dow-Jones Industrial Average, as shown in *Table II*.

Table III

	10-Year % Appreciation	10-Year % Income	10-Year Total Performance 1950-1959 ^a	Volatility 1950-1956
Fund 1	+ 281%	70%	+ 351%	1.11
Fund 2	+ 342	80	+ 422	1.11
Fund 3	+ 418	69	+ 487	1.11
Fund 4	+ 329	68	+ 397	1.09
Fund 5	+ 366	54	+ 421	1.08
Fund 6	+ 320	61	+ 381	1.06
Fund 7	+ 263	90	+ 353	1.05
Fund 8	+ 282	54	+ 336	1.04
Fund 9	+ 232	71	+ 303	1.04
Fund 10	+ 548	65	+ 613	1.03
Fund 11	+ 286	67	+ 353	.99
Fund 12	+ 250	83	+ 333	.99
Fund 13	+ 342	62	+ 404	.98
Fund 14	+ 219	79	+ 298	.97
Fund 15	+ 261	63	+ 324	.94
Fund 16	+ 245	59	+ 304	.94
Fund 17	+ 221	71	+ 292	.93
Fund 18	+ 201	69	+ 270	.91
Average 18 Funds	+ 300%	69%	+ 369%	1.02
Dow-Jones Industrial Average	+ 239%	94%	+ 333%	1.00

Table III shows that the average performance of these funds was 36 percentage points in excess of the performance of the Dow-Jones Industrials. It is notable that the Dow-Jones Average had a better performance record than only one of the 13 funds with volatility in excess of .97. Thus, it is apparent that fund performance, while it depends in a large measure on fund volatility, has been outstanding.

It is unfortunate that volatility figures, such as those shown, are no longer readily available. Nevertheless, such figures were clearly a forward step in enabling the Analyst to make a preliminary judgment as to which

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funds should, and which funds should not, be expected to outperform the Dow-Jones Industrial Average.

Regardless of the use of volatility or similar figures, however, it should be recognized that the purpose of testing a fund's performance against a market average is to ascertain performance relative to "the market," rather than to "a market average." Individual market averages, each with their own unique characteristics, often will give unusual and indeed unrepresentative performance—especially over short periods. By reason of the wide usage of the Dow-Jones Industrial Average in making performance comparisons with mutual funds, we are thus confronted with this question: How effectively does this particular market average represent general market action?

The Dow-Jones Industrial Average Relative To Other Market Averages

In an effort to ascertain the accuracy of the Dow-Jones Industrial Average in reflecting the action of "the market," *Table IV* compares the performance of this average over the past 10 years to the performance of other stock market indicators.

Table IV

	Percent Appreciation Ten Years 1950-1959 ⁷
Dow-Jones 30 Stock Industrial Average	+ 239%
1. Dow-Jones 65-Stock Composite Average	+ 205
2. Standard & Poor 425 Stock Industrial Index	+ 291
3. Standard & Poor 500 Stock Composite Index	+ 257
4. Moody's 125 Stocks Industrial Average	+ 274
5. Securities & Exchange Commission 265 Stock Index	+ 212
6. National Quotation Bureau Over-the-Counter Index	+ 209
7. New York Times 50 Combined Stocks	+ 210
8. New York Herald Tribune 100 Stock Average	+ 91
Average of 8 Indices and Averages	+ 218%

It is very difficult to say which of the *Table III* averages was "best"—i.e., was most representative of market action in the past decade. Each index has its own individual characteristics which affect its performance. For example, the Dow-Jones Industrial Average is based on the market price per share of 30 securities, and one-half of its weight is in the 10 higher-priced stocks, with the other half in the 20 lower-priced stocks. The Standard & Poor Indices give the largest amount of weight to stocks with the largest aggregate market value (i.e., market price per share times number of shares), with the result that 15 stocks provide about one-half of the weight of the Industrial Index, the remaining one-half being provided by the other 410 stocks.⁸ The New York Times 50 stock average is composed of 25 rails and 25 industrials, although rails represent only perhaps 3% of the market value of all listed securities today.⁹ The Herald Tribune Average has a large "cash position," since, when a stock is split, the original share is kept in the average and the split shares are, in effect, sold and kept in the average as cash.

Without debating the merits of any of these pro-

cedures, two conclusions appear clearly established by *Table IV*: First, that market averages can be a dangerous instrument for evaluating investment management results, by reason of their vastly differing results in measuring the same market. And second, that the Dow-Jones Industrials have provided an above average performance relative to other market barometers over the past decade. Thus, irrespective of other considerations such as volatility, objectives, etc., the Dow represents a very difficult "par," and the ability of the average mutual fund in *Table I* and in *Table III* to beat this par by a significant amount, over a 30 year period and a 10 year period respectively, represents outstanding achievements indeed.

The Construction of the DJIA

The Dow-Jones Industrial Average is widely used and widely known, but rarely understood. Probably few investors, or indeed Financial Analysts, realize that the Dow-Jones Industrial Average has *never* had a divisor of 30—i.e., at no time in its existence were the prices of 30 stocks added together and divided by 30 to produce the average for the day. The Dow-Jones Average was originally composed of 20 stocks, and was converted to a 30-stock average in 1928 by the addition of 10 stocks, and a change in the divisor to 16.67.

The method of construction of the Dow involves changing the divisor when substitutions or changes are made in order to keep the Average at the same level before and after the change. As a result of this procedure, the divisor for the Dow-Jones Industrial Average has gradually declined over the years, and is 3.659 currently. The aggregate market value of the 30 Dow-Jones stocks is at this writing about \$2,270, which figure, divided by the foregoing divisor, results in the reported level of about 620 in the average. Thus, the average price of the 30 stocks is some \$75 a share, far less than \$620 which might be indicated by the Average.

The effect of this process of changing the divisor, in the case of a stock split, is to retain one share of the new stock, sell the additional share or shares acquired through the split at the current market price, and reinvest the cash proceeds of the sale in all 30 stocks, in ratio to the current market price of each. This unusual procedure would be quite uncharacteristic—if indeed it were even possible—for an individual investor to duplicate. It reduces the weight of stocks which split, at the same time increasing the weight of stocks which appreciate in price.

It is often said that the Dow-Jones Industrial Average is "unmanaged." Few statements could be more misleading. It is managed in accordance with its objectives—just as is a mutual fund. Whereas a mutual fund aims for growth or income, etc., the Dow-Jones Industrial Average aims to be representative of the general market, and is changed accordingly. Since 1928, for example, there have been 28 changes in the composition of the Dow, and 49 stock splits or dividends that have required adjustment in the average. The only stock whose position in the Dow-Jones Average has not been altered

(through substitution or split) in the last 32 years is International Nickel. As an indication of the substantial changes that have taken place in the Dow, an examination of the four new stocks added to the Average in 1959 may be helpful:

1. Anaconda replaced American Smelting.
2. Swift replaced Corn Products, which had been preceded by Drug, Inc. and Mack Truck.
3. Owens-Illinois Glass replaced National Distillers, which in turn had been preceded by United Aircraft, International Shoe, and Texas Gulf Sulphur.
4. Aluminum Company of America replaced National Steel, in the position previously held by Coca Cola, Hudson Motor, Curtiss Wright, and Wright Aeronautical.

Thus, for better or for worse, the Dow-Jones Industrial Average is a *managed* average in the truest sense of the word.

Buying the Average vs. Mutuals

The unique construction of the Dow Average has, in certain periods, provided this Average with a performance unrepresentative of the market in general.¹⁰ When its performance appears to lag the market, there is little comment. However, when the Dow-Jones has an outstanding performance, the critics of mutual funds are quick to say that investors should not buy mutual funds but instead should "buy the Average."

Even if we were to both disregard the differences in mutual fund objectives and grant that the long-term performance of comparable mutual funds had failed to surpass the Average (contrary to the figures shown in *Tables I and III*), this argument appears to be fallacious on practical grounds. To buy only 10 shares of each stock in the Dow-Jones Average would currently require about \$22,700, or about three times the average investor's holdings of mutual fund shares. The commission costs and odd-lot fees would be high for small purchases;¹¹ the bookkeeping considerable; and keeping such an investor's holdings on the same basis as the Dow, after a stock split or substitution, would in fact be impossible (in the absence of any fractional shares). Furthermore, such an investor would lack all of the conveniences supplied by mutual funds, including custodianship of portfolio securities; ease of income tax reporting; opportunity to accept dividends; and distributions in additional shares; plans for accumulating shares; and plans for monthly cash withdrawals, etc.

What would superficially appear to be a more sophisticated argument has recently been suggested, however. This argument is that the mutual fund itself should buy the market average.¹² It would thus (in theory) be big enough to make the changes and adjustments required by the average, and have sufficient resources to diversify on the same basis as a market average, without prohibitive brokerage commissions on "odd-lots." But even this proposal for an "unmanaged fund" has a number of weaknesses. First and foremost, it ignores the

fact (demonstrated earlier in this article) that the Dow-Jones Industrial Average has not in fact matched common stock mutual funds with comparable volatility in performance results.

Second, even an unmanaged fund could not be fully invested at all times, since it would have to (as do mutual funds) maintain some "cash position" for possible share redemptions, dividend payments to shareholders, and even perhaps as a buying reserve. A minimum cash position might be estimated at 5%. Thus such a fund's volatility would be about .95, and (by definition) its performance gain in a rising market would be less than that of the very Average it was designed to emulate.

Third, the performance results of such a fund would be reduced by brokerage costs involved in making the frequent changes called for by changes in the market average. If we assume a portfolio turnover of 15% a year, and brokerage commission of 1%, on both purchases and sales, this would reduce performance by 3% every decade. Fourth, such a fund would have operating expenses. Even if there were no management fee, there would be administrative expenses involved in the daily pricing of the shares, some taxes perhaps, custodian fees, auditing fees and dividend paying costs, shareholder's reports, annual meetings, and the other sundry expenses that are a part of doing business. These costs could be considerable and would surely reach a minimum of 4/10 of 1% annually, which is only about one-half the mutual fund average. Putting together these *minimum* assumptions, the performance of a hypothetical "Dow-Jones Industrial Average Fund," rather than attaining the 333% total performance gain for the past 10 years shown in *Table III*, probably would have come closer to a gain of something like 306% as shown in *Table V*.

Table V

Unadjusted Figures—Dow-Jones Industrial Average	
Principal Increase	+ 239%
Income	94%
Total Increase	+ 333%
Adjusted Figures—"Dow-Jones Industrial Average Fund"	
Principal Increase (reduced by 5% cash position and 3% brokerage cost)	+ 220%
Income (reduced by 4/10% of average assets for annual expenses)	86%
Total Increase	+ 306%

Also, of course, it should be pointed out that the idea of an "unmanaged fund" has been tried before, and found unsuccessful. In the early 30's, there was a flurry of investor interest in fixed and semi-fixed trusts (which provided an interest in a list of deposited securities, which either did not change or could be changed only under carefully spelled-out circumstances). Such trusts were responsible for about 40% of the sales of investment trust and investment company shares in 1930, 80% in 1931, and 60% in 1932.¹³ However, the percentage thereafter declined to pre-1929 levels (about

5%), and fixed trusts no longer occupy a significant position in the investment company industry. The reason fixed and semi-fixed trusts have not met with investor acceptance is probably as simple as the reason given by the American Institute for Economic Research: "The relative inflexibility of these funds makes them undesirable for the average investor, who usually has neither the time nor the ability to analyze the portfolio securities and ascertain their suitability for his needs . . ."¹⁴

CONCLUSION

Mutual funds are peculiarly susceptible to comparisons with the various market averages. Each fund's daily asset value per share, and the amounts of its dividends and distributions are matters of public record. Thus, a fund's accomplishments are removed from the area of hearsay that surrounds the evaluation of investment results of individuals and institutions using other ways of investing. Investment brokers and dealers, bank trust departments, private trustees, and college endowment funds—and indeed most investment managers outside the mutual fund field—do not disclose their results. Thus, from the Security Analyst's standpoint, a mutual fund is an ideal subject to be placed under the microscope of financial appraisal.

For a fair appraisal of a mutual fund's record of investment performance, however, there must be a careful examination of its investment objectives, its investment policies, and its relative volatility. If a valid comparison is to be made of a fund (or indeed, of funds in general) with a market average, full consideration should be given the destination the fund is seeking (as evidenced by its objectives), the route it is following (as evidenced by its policies), and the speed it is going (as evidenced by its volatility). These same considerations, obviously, are equally necessary when comparing mutual funds with one another. Further, the adequacy of the market average itself should be questioned, studied, and tested, in order to ascertain whether it is a valid yardstick and thus a sound instrument for measurement.

The careful and prudent Financial Analyst, moreover, realizes full well that investing is an art—not a science. This knowledge enables him, paradoxically, to appreciate both (a) the enormous challenges that confront the professional investment managers of mutual funds in their efforts to achieve the fund's stated investment objectives; and (b) the challenge to the Analyst himself to use past performance results to try to ascertain which funds will do the best job of meeting their objectives in the future.

It is clear that even the most assiduous analysis of yesterday's figures cannot foretell what tomorrow may bring—whether the problem is selecting a mutual fund or an individual investment, or forecasting the action of the stock market, or indeed of predicting any event dependent upon the human element. However, the Financial Analyst—and the mutual fund shareholder—can gain confidence from the fact that mutual funds in general have met the test of time, and performed in keeping with their stated policies and goals.

FOOTNOTES

1. A survey published by the National Association of Investment Companies indicates that the primary advantages of investment company ownership are management (indicated by 24% of regular mutual fund account holders); diversification (55%); ready marketability (8%); and convenience (13%). The Mutual Fund Shareholder, National Association of Investment Companies, 61 Broadway, New York, N. Y. (1958), page 27.

2. The usual method of computation is as follows: (change in net asset value per share during the period + income dividends + capital gains distributions) ÷ (net asset value per share at the beginning of the period).

3. The method of computation is the same as described in Footnote 2 above, but it is assumed that all capital gains distributions were paid in the form of additional shares, and that all income dividends were paid in cash (including dividends paid on additional shares acquired). This method places the funds on the same basis as the Dow-Jones Industrial Average which (does not "realize" capital gains). The percentages are based on the January 1, 1930, net asset value per share.

4. For the precise method of computation see: Wiesenberger, Arthur, *Investment Companies*, 1957, 61 Broadway, New York, N. Y. (1957), page 87.

5. As a further indication of the appropriateness of volatility figures in statistically evaluating mutual fund policies and objectives, it is interesting to note that the average balanced fund shown in the Wiesenberger tabulation had a volatility of 0.62. This figure is a close approximation of the average percentage of resources such funds normally have invested in common stocks.

6. Performance computations made as described in Footnote 3 above, and using as a base the Jan. 1, 1950, net asset value per share.

7. The percentages in this table do not include dividend income (which is not published for many of the indices). The percentages therefore only include the increase in the level of the index from Jan. 1, 1950, to Dec. 31, 1959. For this reason, the figure for the Dow-Jones Industrial Average includes only the appreciation figure shown in Table III.

8. Storer, Robert W., *A Critical Evaluation of Stock Market Indexes*, a paper presented at the annual convention of the American Statistical Association, Washington, D. C., Dec. 27, 1959, page 12.

9. *Ibid*, table 1, page 8.

10. 1959 was a good example of such unrepresentative performance for the Dow-Jones Average. It increased (exclusive of dividends) by 16%, as compared with an average gain of 9% for the other indices shown in Table IV.

11. It is estimated that to diversify among only 20 stocks, based on "round trip" New York Stock Exchange commissions and taxes, the cost would be 15% for \$1,000; 14.5% for \$2,000; and 10.3% for \$3,000. Johnson, Hugh A., *Johnson's Investment Company Charts*, Buffalo, New York (1959), page XX.

12. Renshaw, Edward F. and Feldstein, Paul J., "The Case For An Unmanaged Investment Company," *The Financial Analysts Journal*, Volume 16, Number 1, January-February, 1960, page 43.

13. *Investment Trusts and Investment Companies*, report of the Securities and Exchange Commission, part 2, page 190.

14. Doane, Russell C. and Hills, Edward J., *Investment Trusts and Funds from the Investor's Point of View*, (Great Barrington, Massachusetts), American Institute for Economic Research, (1959), page 9.

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ANNUAL REPORT SUMMARY

	Year 1958	Year 1959
LOANS AND DISCOUNTS OUTSTANDING		
Automobile retail	\$186,124,033	\$256,094,079
Other retail	60,526,709	68,237,788
Consumer loans	125,112,287	146,787,973
Automobile and other wholesale	23,937,528	26,750,638
Loans to finance companies and others . . .	9,771,619	12,013,883
Total	<u>\$405,472,176</u>	<u>\$509,884,361</u>
 AUTOMOBILE, FIRE, AND CASUALTY INSURANCE		
Net premiums written	<u>\$ 9,658,694</u>	<u>\$ 12,470,023</u>
 EARNINGS		
Total income	\$ 58,025,418	\$ 72,649,174
Operating income (before interest)	23,783,389	31,011,853
Interest and debt expense	12,500,612	18,466,211
U. S. and Canadian income taxes	4,830,000	5,525,000
Net income	<u>6,452,777</u>	<u>7,020,642</u>
 Net income for common stock (after preferred dividends)	\$ 6,116,193	\$ 6,732,082
Average number of shares outstanding . . .	1,250,000	1,294,274
Earned per share	\$4.89	\$5.20
Dividends per share	\$2.40	\$2.45

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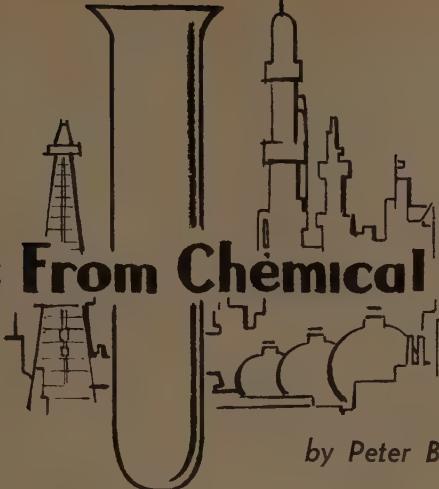


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New Profits From Chemical Research

by Peter B. Cannell

INDUSTRIAL RESEARCH has grown from expenditures which approximated \$25 million per year before World War I, to around \$12 billion annually today.

Moreover, since World War II, the amount of research in this country exceeded all the research carried on in our entire history. In fact, spending for research and development has about doubled in just the past six years. And for 1962 it is estimated that the amount spent may approximate \$15 billion, and for 1969 up to \$28 billion.

Chemical research, and the implications of scientific research, of course, are my particular interest, and later in this article I will mention a few specific areas of chemical research that seem promising, from an investment standpoint for the 1960's.

There is a rule of thumb among industrial planners that there is a time lag of five to seven years between the conception of a product in the research lab and the point at which it is commercially launched, and that each dollar that a company invests in research eventually results in \$5 to \$6 in new sales. That is only a very rough guide because some developments obviously take longer than others to commercialize. But assuming that this time lag is reasonable, many of the rapid changes taking place today result from research labors of, say, 1954 or earlier. Since research expenditures now are running at double the rate of 1954, the implication is that the 1960's will be even more rewarding from a technological standpoint. The \$12 billion spent on re-

search and development last year may produce over \$60 billion of new sales by the later 1960's. *Fifteen years from now half of the goods that you and I will buy and use may not be produced or even known today.*

Let's turn now to chemical research in particular. There are basically two areas of science—physics and chemistry. One involves physical changes, such as stamping out parts or in automobile manufacture; and the other involves the rearrangement of molecules. Everything in the world, including all of us, is made up of about 100 elements. By recombining these elements chemists are literally remaking the world.

Chemicals Lead All in Research

The chemical industry is in the forefront of all industrial research. No other industry invests as much of its own money in research and development (excluding government funds), and no other industry invests as much in basic or "pure" research. The McGraw Hill Department of Economics estimates that 16% of the chemical industry's sales this year will come from products not manufactured commercially in 1956. Union Carbide reports that half of its net income comes from products and processes unavailable 15 years ago. Procter & Gamble points out that two-thirds of its household business is in products not manufactured 12 years ago.

There are two subjects that I would like to cover here parenthetically. One is the basic advantage inherent in chemicals and chemical processing in an inflationary economy—relatively low labor costs, automation, high plant investment, cheap and abundant raw materials and, managements that are accustomed to change and welcome change. The other subject is the past record of chemical research—the products, familiar to all of us, that have come to market as a result of past research: synthetic fertilizers, sulfa drugs, high octane gasoline, nylon, scotch tape, penicillin, plastics, syn-

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thetic detergents, aerosol sprays, synthetic rubber, and so forth.

Most investors are also familiar with the great past growth investments in chemistry — companies whose earnings and dividend growth has been stimulated by chemical research: Dow Chemical, Minnesota Mining, Rohm & Haas, Thiokol Chemical, Polaroid, Merck, Norwich, Smith, Kline & French, Goodyear, Corning Glass, National Lead, Eastman Kodak and others.

This brings me to the final topic that I would like to cover. What are some of the areas now in research that look attractive from an investment standpoint in the 1960's? I shall mention several that seem to me to be promising:

ALUMINUM The markets in transportation, containers and in construction are wide open. For example, the average 1960 model car uses about 60 pounds of aluminum. This may increase to several hundred pounds per car over the next few years, particularly if car makers switch over to aluminum engines. Kaiser Aluminum, Alcoa, Reynolds Metals, Aluminium, Ltd. and Pechiney of France are the leading investments in aluminum.

SPECIAL PAINTS The paint business generally is not very dynamic. However, certain aspects of it should grow rapidly. As we are all painfully aware, professional painters get paid about \$3.25 per hour and the cost of having a room painted may run about \$50 or more. On a do-it-yourself basis the job will cost about \$7.00. And so the trend toward do-it-yourself painting certainly makes sense, particularly in view of the new paints that have been and are being developed. These are the so-called water-base latex paints made from styrene-butadiene, acrylics and polyvinyl acetates. These new paints now have a major share of the indoor paint market. Research is now producing improved compounds that during the 1960's may capture an important share of the 60 million gallons-per-year outdoor paint market. Companies active in research on these new paints include Sherwin-Williams, National Starch, National Lead, Rohm & Haas, and du Pont.

SPACE FLIGHT Chemistry is involved in every aspect of missile technology, including structural materials, electronic components and propulsions systems. Long-range missiles now use liquid propellants — kerosene type fuel and liquid oxygen as oxidizer. Before long liquid hydrogen may be the generally accepted fuel, and perhaps liquid flourine as an oxidizing agent. Shorter range missiles use solid propellants, such as a resin binder into which is mixed ammonium perchlorate as oxidizer. There has been a trend toward solid propellant systems in long-range missiles, of which the Minuteman and Polaris are examples. This trend toward solid propellants should continue due to their simplicity. However, it is doubtful that liquid systems for long-range missiles will be replaced. The Titan missile may employ a storable liquid system consisting of hydrazine compounds and nitrogen tetroxide. Among the many chemical companies contributing to the tech-

nology of missile propellants are: Hercules Powder, Thiokol, Atlantic Research, Aerojet General, Allied Chemical, Olin Mathieson, American Potash, Hooker Chemical, Air Products, Union Carbide, Stauffer Chemical and Air Reduction.

ADHESIVES Chemical adhesives should show a good rate of growth in years ahead. In fact, some enthusiasts see the day when nails may be obsolete. Bonds of metal-to-metal, glass-to-metal, and wood-to-glass, are increasing in use. New and improved adhesives are continually increasing their penetration into aircraft, missiles, paper, shipping containers and construction markets. Vinyl floor tile, applied with adhesives, is common. We may soon have parquet plywood flooring that can be put down with adhesives instead of nails. Adhesives will be used increasingly in non-woven fabrics, to replace stitching, and in prefabricated building materials. Scores of companies are active in this field. Notable examples of companies doing outstanding research on new adhesives are: Eastman Kodak, National Starch, and Shell Oil.

DRUGS The most dramatic progress in the drug field will come in those areas where the challenge is most pressing; for example: heart disease, cancer and mental illness. Though it is impossible to predict success in these areas as to time, it appears possible that during the 1960's drug research will provide cures for cancer and heart disease; effective vaccines for the common cold and measles; new chemicals to prevent athlete's foot and other fungus diseases; antibiotics effective against staphylococci and other virulent strains; new steroids for cardiovascular and bleeding disorders; improved pain relievers; and more effective mental health drugs. Among the many outstanding drug companies are: Eli Lilly, Carter Products, Merck, Norwich, Schering, Searle, Smith, Kline & French, Upjohn and Vick Chemical.

FARM CHEMICALS Pesticides, insecticides and other related farm chemicals may double in sales during the 1960's. The Department of Agriculture estimates that weeds are now causing crop damage of about \$4 billion per year; that plant diseases cause annual damage of \$3 billion; and that even rats may bring about economic damage of over \$1 billion per year. Among the more promising areas of research are new organic phosphate compounds. Also systemic insecticides which are absorbed by a plant through its sap system, thus making all parts of the plant toxic to certain types of insects. Microbial insecticides are also intriguing. These are microbes that kill insects but are otherwise harmless. Companies active in this type of research are: Stauffer Chemical, American Cyanamid, Dow, and Hercules Powder.

SYNTHETIC RUBBER Since World War II synthetic rubber has tended to displace natural, tree-grown rubber so that today about 65% of all rubber used in this country is synthetic—most of it derived from the petrochemicals, styrene and butadiene. Research has been

busily exploring new types of synthetic rubber and during the 1960's we shall probably see large volume use of new, so-called "synthetic natural" rubber, which substantially duplicates the natural rubber molecule and should sell at a lower price than natural rubber. One such new variety is polyisoprene. The companies to watch in this new field are: Shell Oil, Goodyear, Firestone and Goodrich.

SPECIAL METALS As greater and greater speeds are attained by aircraft and missiles, materials able to withstand excessive temperatures will be needed. Columbium, tantalum, beryllium, tungsten and molybdenum seem promising, although many technological problems must be overcome, particularly those relating to oxidation at high temperatures. In the electronics industry chemically purified metals should grow rapidly in use—silicon for rectifiers and transistors, tantalum for capacitors. Atomic energy metals having special nuclear characteristics are zirconium and beryllium. Companies working actively on the new metals are Union Carbide, du Pont, National Lead, Fansteel, Kawecki, Wah Chang, and Beryllium Corp.

NEW ENERGY SOURCES The fuel cell has excited a lot of interest recently. This is a means of converting chemical energy—hydrogen, for instance—into electricity. Theoretically the efficiency of such a system is 65%-85% as compared with 25%-35% for large power plants today. All of the large electrical equipment companies are pushing research on fuel cells. Thermoelectric heating and cooling is also the object of considerable research. Key to this system, which requires no moving parts, is the passage of a direct current through the junction of two dissimilar metals. Bismuth, tellurium, lithium, mercury, silicon and other materials are being investigated. Among companies researching this field are: Westinghouse, Merck, Minnesota Mining, and General Electric.

NEW PLASTICS Sales of plastics may double during the 1960's.

Polyurethanes: cheaper and lighter than foam rubber, used as upholstery, carpet underlayers, wall panels, crash pads for dash boards and so on. General Tire, Nopco, and Monsanto are three of many companies in this field.

High-performance plastics: du Pont's Teflon and Delrin, Hercules' Penton, and Minnesota Mining's Kel-F. Teflon and Kel-F are fluorinated hydrocarbons. They are resistant to heat, chemicals and electricity. They are also nearly frictionless and thus have unique possibilities in gaskets and bearings. Self-lubricating bearings of this type

Indicative of the rapid progress being made via industrial and scientific research is this author's observation that by 1975 half of the goods we will buy and use may not be produced, or even known, today. Moreover, research expenditures probably will orbit \$35 billion.

may provide us with a greased-for-life car that needs no body lubrication.

Du Pont's Delrin was introduced last year after 11 years of research and an expenditure of \$42 million. Delrin is a high-performance plastic that aims to move in on the market for metal parts and castings, such as car door handles. Other plastics for the 1960's are epoxies (where Shell Oil is the leader); polypropylene (where Hercules appears to be in the lead); polycarbonates (in which General Electric and Monsanto are leading the way); and glass-reinforced polyesters where the boom in boat building should continue.

GLASS In the glass field the important developments for the 1960's will include broadened markets for pyrocerams, a new crystalline glass now beginning to be used in kitchen houseware, and also glass electronic components. Corning Glass in this country, and St. Gobain, in France appear to be the research leaders in the glass industry.

GRAPHIC ARTS Photography and xerography should grow very substantially in the 1960's due to new and improved products. Polaroid may introduce color to the picture-in-a-minute field. Haloid, Eastman Kodak, Minnesota Mining, and others, should make progress on new office reproduction processes. Kodak is working on means by which photographic techniques can be adapted to electronic computers. For example, photographic recording of the output of computers at the rate of one million characters per second is possible.

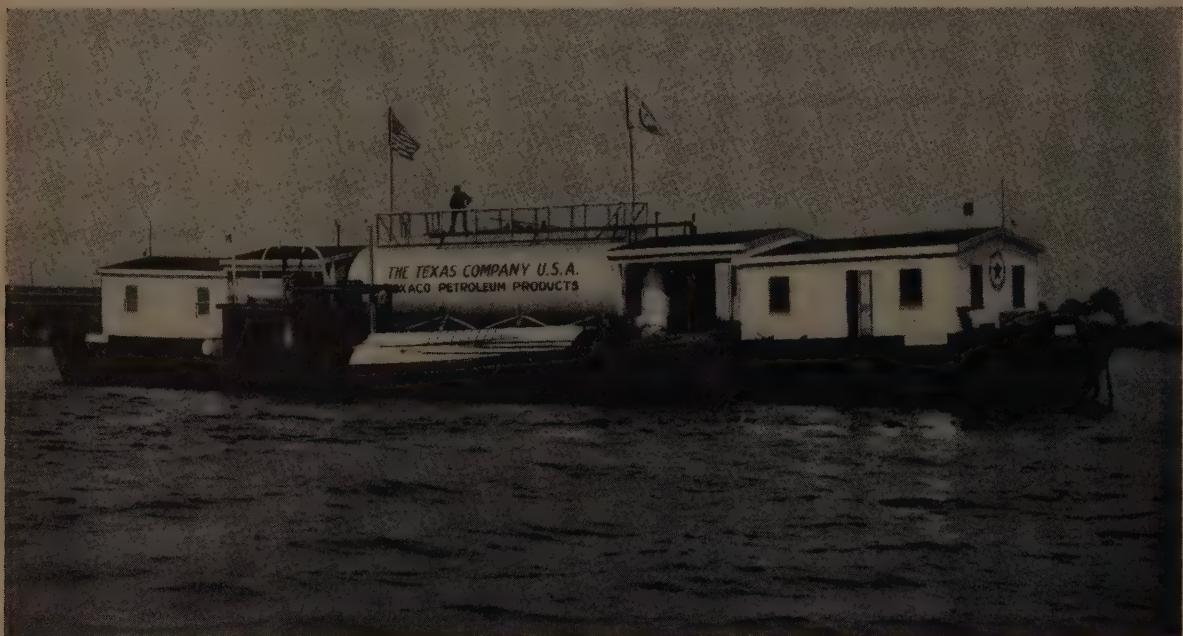
I should certainly mention atomic energy, which may commence to show some *real growth* in the 1960's. This includes radiation as a means of manufacturing chemicals, and irradiated food which some day may make refrigeration unnecessary. Magnetic tape, now a relatively small industry, should mushroom in the 1960's. Also, a successful catalyst system for automobile exhaust gases could be a tremendous development—particularly if states make installation of such devices mandatory.

In conclusion, I feel confident that the fruits of chemical research will be substantial during the 1960's, and profits and dividends gratifying.

* * *

At some point in the early 1960's the Gross National Product (total value of the output of all goods and services in the U. S.) may soar above the half-trillion dollar mark—possibly to \$526,000,000,000!

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TEXACO 

Inflation and the Rate of Interest

by David McCord Wright

Editor's note: This article is based on an address by Dr. Wright before the Junior Investment Analysts of Montreal.

WHAT IS THE ORTHODOX THEORY OF THE RATE OF INTEREST?

Hardly a week passes without someone somewhere asking: "Are you a Keynesian?" And this question is always a problem. If one says "yes" the questioner is likely to set one down as a "radical" of some sort, or at least an adherent of various quack ideas. And if one says "no" one may be set down as a fool.

The problem is, of course, that the word "Keynesian" has meant many things to many people, and perhaps to few has it meant as many different and often contradictory things as to the British economist and monetary expert, Keynes himself! As Lord Beveridge puts it: "Even Lord Keynes can differ from J. M. Keynes." Let me try, therefore, to sort out some of the confusion. And, particularly let us discuss that most debated of questions: the rate of interest. Many people today, who are opposed to tight money and high interest rates, cite John Maynard Keynes as their authority.

Let us return to our original question: What is the orthodox theory of the rate of interest? Simply that interest is, in the last analysis, the price paid for "free" resources—labor, materials, and equipment—which can be used to construct new capital instruments: houses, factories and machines. A continuing flow of real saving leaves free at any one time an "economically unappropriated" margin of men and materials. By borrowing the money saved, people get hold of (can pay for) these real resources and put them to work on new construction, etc. But now, since the new projects are generally expected to be profitable, more people are usually anxious to borrow than are willing to save. Therefore the flow of saved money, which controls the flow of real resources, commands a price "the scarcity tag," and this price is the rate of interest. Of course, I am being desperately brief.

But why, you may ask, is the new production profitable? The answer is that, in the last analysis, this profit springs from the additional productivity from introducing new ideas and new methods. It is true that after a while the net money profit from any particular idea or opportunity is likely to decline or disappear, but a continuing stream of discovery and expansion recreates the

demand for capital, *in general*, about as fast on average, as it declines in particular projects.

Such was the orthodox theory of interest. And it follows from it—as indeed there is ample historical evidence to show—that *under the conditions assumed* the money aspect of the transaction is merely superficial. I mean that over, and over, and over again people have said: "Let's bring down this rate of interest by creating some more money." And over, and over and over again the result has merely been inflation.

For under the conditions assumed by orthodox theory and frequently found in the real world—that is, "full" employment—merely giving people more money will not create for them more men or more materials. The increased money spending just bids up the prices of these desired resources, and so after an interval most "real" relations are much as they were before. This explanation omits the use of inflation and "forced savings" to accumulate capital. Therefore, if something happens to make investment prospects look particularly bright, and lots of people are trying to borrow, the only thing to do—if we want to avoid inflation and do not wish to put the economy into a strait-jacket of controls (ration credit)—is to allow the rate of interest to rise.

Keynes: Much Misunderstanding

Now, however, we must ask where Keynes fits in. Let us first talk about it in terms of the real problem and then go on to the particular *mumbo jumbo* of terminology which is often used. So far as the real problem is concerned, it is evident that, from time to time and for a number of reasons, the expectation of profits on new investment sharply declines and may even fall to zero or some minus quantity. Those orthodox economists who considered the problem were not worried by it. They said: "When profit prospects fall, fewer people will try to borrow, the interest rate will fall, and people will stop saving and start spending." Growth would decline or cease, it is true; but there would be no unemployment, only a shift in the direction of output.

Keynes spoiled this story, in several ways, though he did not in fact add very much to what was already understood by the leaders of the field—say Professor Sir Dennis Robertson. What Keynes pointed out, or more accurately speaking, underlined, was that in the short run the rate of interest may not fall because people would rather accumulate and/or hold stocks of money than take the risk of lending. So when, he thought, the rate fell to around two percent, people would just keep on holding money but would not lend at a lower rate. Worse yet, they would not start spending, but instead would keep on trying to save. The men who had been employed in the investment and con-

Dr. David McCord Wright studied architecture at Pennsylvania University, law at the University of Virginia and economics at Harvard University, where he obtained his Ph.D. He has written many books and lectured extensively in Europe. Dr. Wright is now William Dow Professor of Economics and Political Science at McGill University, Montreal.

struction industries would be out of a job, and indeed, their unemployment and lack of purchasing power would be spread over the whole system by a process which he called the "multiplier." Keynes' remedy for this situation (again not a new one) was for the government to start investing, preferably with an unbalanced budget, to set things going once more.

At this point Keynes' thought splits, depending upon the analysis made of the particular problem. Sometimes he wrote as if he thought the collapse of profit prospects would be permanent. Thus he wrote, from time to time, a great deal of mystical nonsense about "solving the economic problem" or, as we find a similar idea in Professor Kenneth Galbraith's more recent version, "release from the thralldom of productive efficiency." When one assumes that a state of "full investment" has really been reached then something has to be done to stamp out the accumulative instincts of society, and so in Chapter 24 of Keynes' *General Theory of Employment, Interest and Money* one finds a wide assortment of confused and sweeping propositions about the euthanasia of the rentier and the elimination of interest, and so on. I regard all this as nonsense remedies for a nonsense analysis.

But most economists do not accept the idea of permanent glut, and indeed it looks grotesque today in the light of our "population explosion." Most economists today feel that the constructive thing to do is to look for the maladjustment that has created the temporary collapse and remedy *it*. But again, most economists today feel that this may take time, and that, in the interval, it may be desirable to run a deficit, and have government investment, to keep things from getting too much worse. Even here, however, two things are being increasingly realized: (1) the deficit finance and increased spending can (not necessarily) aggravate the maladjustment that is causing the trouble; and (2) the new money created by government, and by "easy money" bank policy, may not cause inflation right away it is true. But after recovery gets started the accumulated money purchasing power heaped up during the slump may be turned loose like an avalanche and blow up the price structure in inflation. Thus, modern economic thought is getting increasingly more conservative about both deficit finance and low interest, as we have seen more and more of its *delayed* but often devastating effects. The strange thing is, however, that if one reads Keynes carefully one will see that he was aware (at times) of nearly all these problems.

Pay Your Money; Take Your Choice

So much for a "roller skate tour" of Keynes on a practical level. Let us now go on to the *mumbo jumbo* of terminology. Keynes, in his more dogmatic moments, said that interest was "solely" determined by the "quantity of money and liquidity preference." By "liquidity preference" he means the desire to hold stocks of money in order to provide for contingencies and outguess the market. Surely this sounds like an entirely different thing from the orthodox "productivity and thrift" analysis which I have cited. In particular,

many of Keynes' more woolly-minded disciples seem to think that Keynes' theory completely denies any connection between a rise in profit prospects and the rate of interest. But is this so? Like most of Keynes' more striking effects we will find that it is "all done with mirrors." I mean that the matter often boils down to a mere play on words. Let us see when Keynes' theory is "real" and when it is not.

If we are in the depths of a depression and profit prospects rise, it may well be that at first all one will get is a general expansion. The rate of interest need not be increased. Instead, (in Keynes' terms) the "inducement to invest" (the ratio between the rate of interest and expected profits) will rise, more money will be lent and spent, and the economy will move toward full employment. There will be no inflation, for the new money will be spread throughout the system to finance the real expansion. The economy will be like a dry sponge, as it were, sucking up the extra money in working balances. Under these circumstances the Keynesian policy of easy money makes reasonable sense; and increased profit prospects will not of themselves raise the rate of interest—not right away.

But now let us suppose we get near full employment. The "unappropriated margin of resources" will be fully bid for. If we do not then allow the rate of interest to rise, reflecting increased demand, we will be in for an inflation. How and why would it rise under Keynes' terminology? The answer is really a very simple one. I am sorry to bother with the *hocus pocus* but it must be done.

Remember Keynes said the rate of interest was determined by *nothing* except the quantity of money and "liquidity preference." But now what determines "liquidity preference"? Well, Keynes split "liquidity preference" into two parts: (1) the "transaction and precautionary" motive; and (2) the "speculative" motive. Motive number one refers to household and business balances. Motive number two refers to trying to outguess fluctuation in securities prices. Now, just here Keynes made a perfectly unnecessary and very misleading assumption. He said that motive number one only reacted *passively* to changes in income. Thus he made himself able to say that the only important influences upon the interest rate were (a) speculation and (b) the quantity of money. This is Keynes' fundamental error.

For look! If profit prospects are rising and people want to invest more, won't they be wanting more cash balances too? In other words, if people expect the scale of their operations to increase next month won't they be looking around *now* for more money to meet payrolls and pay bills? Obviously yes. In other words motive number one for *liquidity preference* rises, and though this may be offset for a while by changes in motive number two (the speculative motive), a sustained rise in profit prospects will come to dominate the situation, and the rate of interest, pushing it up—which is exactly what the orthodox theory would have said.

Thus, if there is full employment or we are getting near it, the rise in profit prospects and the desire to

invest will create an increased demand for money, or "liquidity preference," which it will no longer be safe to satisfy, if we wish to avoid inflation. Now if we choose to pick up the story in the middle and call the increased desire for business balances a "rise in liquidity preference due to an increase in the transactions and precautionary motive," and thus explain the rise in interest rates in terms which save the respectability of Keynes' system, well we can do so. But the real facts will be that the interest rate is going up because productivity and profit prospects are once more rising relative to the flow of real resources.

Keynes' Contribution, Really Great

I have made my explanation as short as possible; but another point must be briefly mentioned. I wrote up the analysis I have given here in high-brow style 15 years ago, published it, and sent it to Keynes. He replied that my article was O.K., and that while he couldn't pass on every detail, he had read it, liked it, and saw nothing wrong with it! Yet to this day that article and my reasoning is largely ignored by the more vocal extremists. The reason is that the field today is largely divided between two types: (a) those who give Keynes a literal and nonsense interpretation and damn him for it; and (b) those who give him a literal and nonsense interpretation and echo his mistakes. Not many people are interested in an interpretation which would make him into an "honest man" as it were. Yet this procedure is grossly unfair to Keynes, who did at least sometimes talk sense and made many secondary contributions to our economics. Furthermore, it perpetuates a needless split, and unnecessary barrier to communication in the field of economic thought.

Two more points deserve brief mention. The first concerns the maladjustments which induce the crisis. Often these may trace back to action of pressure groups (frequently unions) in raising costs or cutting down efficiency. Now if the union knows that the unemployed will be taken care of by insurance and public works (deficit financed), it may be less likely to moderate its demands. Keynes saw this problem (sometimes) but I do not think he gave it adequate weight.

The second point is a favorable one, for I have mostly "accentuated the negative" concerning Keynes; this is unfair. What he did give us was a system for organizing our ideas which every competent modern economist uses whether he calls himself Keynesian or not. Wherever you find a man adding up the expected components of Gross National Product to see if we will have full employment; calculating what consumption is likely to be; and attempting to forecast investment, there you have a neo-Keynesian, no matter how much such an individual may disclaim the label.

JOURNAL AMONG 'THE INFLUENTIALS'

From an extensive poll of Security Analysts, the Funk & Scott Publishing Co. found that *The Financial Analysts Journal* was among the country's widely-read business and/or financial publications.

BRITISH COLUMBIA POWER CORPORATION, LIMITED and Subsidiary Companies

CONSOLIDATED STATEMENT OF INCOME for the Year Ended 31 December 1959 (with corresponding figures for the year ended 31 December 1958)

	1959	1958
Gross revenue from operations.....	\$96,923,531	\$83,273,363
Deduct—		
Employment costs, materials and outside services, etc.....	39,799,535	34,438,222
Provision for depreciation.....	13,740,647	12,776,621
Required for government:		
Provision for taxes on income.....	11,487,056	7,338,355
Property taxes.....	4,529,981	4,129,457
Other charges.....	1,187,694	1,111,887
Total operating expenses.....	70,744,913	59,794,542
Operating income.....	26,178,618	23,478,821
Add—		
Non-operating income:		
Return from temporary and other investments, etc.....	1,135,574	1,113,082
Profit through redemption of bonds and debentures at less than principal amount.....	289,719	347,487
Interest charged to construction.....	4,616,587	2,898,903
	32,220,498	27,838,293
Deduct—		
Interest on long term debt.....	15,178,062	13,292,422
Amortization of discount and expense on long term debt.....	705,055	655,280
Minority interest in earnings of a subsidiary company.....	65,029	12,648
Net income for the year.....	16,272,352	13,877,943
Deduct—		
Dividends on shares owned by the public in subsidiary companies:		
British Columbia Electric Company Limited.....	4,952,136	4,952,136
British Columbia Electric Railway Company Limited.....	48,724	49,324
Earnings for the year on Common Shares of parent company:		
Amount.....	\$11,271,492	\$ 8,876,483
Per share on 4,549,756 shares (1958—4,549,431 shares) outstanding at year-end.....	\$ 2.48	\$ 1.95

CONSOLIDATED STATEMENT OF EARNINGS EMPLOYED IN THE BUSINESS

for the Year Ended 31 December 1959 (with corresponding figures for the year ended 31 December 1958)

	1959	1958
Earnings employed in the business as at the beginning of the year.....	\$20,365,212	\$18,172,376
Capital surplus merged therein.....	505,515	—
	20,870,727	18,172,376
Add—		
Earnings on Common Shares of parent company per consolidated statement of income.....	11,271,492	8,876,483
	32,142,219	27,048,859
Deduct—		
Provision for possible loss on investments.....	1,000,000	—
	31,142,219	27,048,859
Deduct—		
Fees to increase authorized share capital.....	225,303	—
Commission and expenses on issue of Common Shares of parent company and of British Columbia Electric Company Limited.....	—	459,703
	30,916,916	26,589,156
Deduct—		
Dividends on Common Shares of parent company.....	6,369,457	6,223,944
Earnings employed in the business as at the end of the year.....	\$24,547,459	\$20,365,212

Copies of the complete Annual Report may be obtained by writing to British Columbia Power Corporation, Limited, 970 Burrard Street, Vancouver 1, B.C.

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U. S. International Balance of Payments

by Robert R. Barker

MOST OF THE BASIC FACTORS upon which economists have in recent years successfully forecast the outlook for U. S. business are pointing upwards.

But, favorable as the business outlook may be, there are increasing signs that we are moving toward a balance-of-payments crisis within the next few years. It has been so long since we have had to think about our balance of payments that these signs are not yet being taken very seriously. Most of the experts have concluded that we can and will take steps to avoid a crisis, without much difficulty. However, the trends seem to me so strong, and the measures needed to arrest them so contrary to the present temper of the country, that I think the outcome is doubtful, at best. The burden of proof has clearly shifted from the pessimists to those who seek to reassure us. The crisis, when and if it arrives, might come as early as the end of 1960, or early 1961, and would have serious world-wide repercussions. This article presents what seem to me the principal elements in the situation.

We have now lived through a period of 25 years during which the U. S. Dollar was basically undervalued, relative to the currencies of most of the rest of the world in terms of the goods entering international trade. It will be recalled that when Franklin Roosevelt was forced to devalue the dollar in 1933 he did so under the guidance of Professor Frank Pearson and raised the U. S. price for gold by 70% to \$35 per oz. This was considerably higher than indicated by the relative economic positions of other currencies and was calculated to provide a reflationalary fillip to the economy of the United States. The result, when coupled with widespread social unrest in Western Europe and the strains produced by Nazi rearmament, was a series of exchange crises abroad and an immense flow of gold from the rest of the world into the United States. This flow reached such proportions that the Federal Reserve Board began to sterilize gold imports during the later 1930's.

Vast Spending, then Inflation

Then came World War II and the drastic economic rehabilitation problems which wracked our Western allies. In 1945-1946 consumers surged into the stores to try and spend the wartime savings they had accumulated over six years and to buy the goods they had been

denied during the war and during the preceding depression. Simultaneously, immense programs of capital reconstruction had to be undertaken by industry. Demand for everything was limitless and the money to make it effective was swollen by huge wartime bond issues in the hands of the public and in the banks. On the other hand, inventories and the capacity to produce were prostrate in the United Kingdom and on the Continent. Virulent inflation was the consequence, and it was rapid and searing. It hit the United States as well as Western Europe, but was more severe abroad and would have been even worse without the Marshall Plan. Further devaluation by our allies inevitably followed.

Dedicated to Freeing Prices

With the outbreak of the Korean War, inflationary pressures increased in the United States, and this coincided with some easing in Europe as new productive facilities were gradually completed. Thus, the imbalance between the dollar and leading foreign currencies began to be redressed. Perhaps the first clear sign that the long period of "dollar-shortage" was ending came with the Suez crisis. By all the precedents of 20 years, a fatal run on sterling should have resulted. Instead, vigorous and drastic monetary action by Britain's MacMillan Government, plus loans from the United States and the International Monetary Fund, arrested the tide. Devaluation was avoided, and after 1957 Great Britain proceeded to build its reserves of gold and foreign exchange at an accelerating rate.

In the meantime, public disenchantment with constant inflation was spreading abroad. Many in Europe had lived longer and more intimately with inflation than we, and had suffered more from its consequences. One by one, starting in Germany and progressing through England, the Low Countries, Japan and France, the electorates gave their support to parties and policies dedicated to freeing prices, balancing budgets and containing the money supply. The transition was eased by expansion in their own new, low-cost production, and resulting lesser requirements for imports from the United States. Also important was the world-wide decline in raw-material prices which constitute a major part of European imports.

In contrast, our own more gradual inflation showed no sign of slackening and, even now, we have not taken decisive action to halt it. During the last two years—for the first time in a generation—the world has seen a recession which hit this country harder than Europe and during which foreign currencies strengthened against the dollar, rather than weakened. Our Western allies have been setting their currencies free rather than restricting them. It is now becoming clear, for all to see, that the era of "dollar shortage" is over.

Robert R. Barker is a general partner with William A. M. Burden & Co. as well as being a vice president and director of Austral Oil Co., Mine Management Inc. and Cougar Oil Co. He is also a director of Nakina Developments Ltd. Prior to his present connection, Mr. Barker was with J. P. Morgan & Co. for 13 years. A graduate of Harvard College, Mr. Barker is a member of The New York Society of Security Analysts.

Recent Balance-of-Payments Trends

Table I presents the basic data with respect to our balance of payments for the five years 1955-1959 as taken from "International Financial Statistics," published by the International Monetary Fund. The 1959 figures are my own estimates based upon actual figures for the first three quarters of the year.

The highlights seem to me as follows:

(1) Until 1956, the two or three billion dollar annual surplus in our merchandise trade abroad and the somewhat smaller surplus in our exchange of services with foreign countries were almost enough to cover annual U. S. Government expenditures, grants and loans abroad of about five billion dollars and a rising volume of U. S. private foreign investment. The annual deficit in our balance of payments ran at between one and two billion dollars per annum and this permitted a healthy strengthening of the currencies of our Western allies—the avowed purpose of the Marshall Plan.

(2) In late 1956, and the first part of 1957, the Suez crisis brought an extraordinary rise in our exports,

from \$14.2 billion in 1955 to \$19.4 billion in 1957, and almost balanced our over-all foreign transactions, despite a rise in imports from \$11.5 billion to \$13.3 billion during the same period.

(3) In 1958, with the ending of the Suez dislocations and the arrival of the business recession, our exports dropped by \$3.2 billion, while our imports showed only a nominal decline. In that year, our over-all balance-of-payments deficit jumped to almost \$4 billion and we lost \$2.3 billion of U. S. gold. There was also a \$1.2 billion rise in foreign investments in the U. S.

(4) These trends continued in 1959, despite the business recoveries both here and abroad. Based on actual figures, through the first eleven months of that year, exports in 1959 are estimated to be only slightly higher than in 1958, while imports should be up perhaps another \$2.6 billion. Our surplus from merchandise trade practically disappeared last summer and, at the same time, our surplus from the exchange of services abroad has also been declining. In 1959, our over-all balance-of-payments deficit reached about \$4.7 billion, without including our \$1.4 billion additional

Table I

	1955	1956	1957	1958	Est. 1959
	(Billions of dollars; Receipts + and Payments —)				
Private Goods & Services					
Merchandise Exports	+ \$14.2	+ \$17.4	+ \$19.4	+ \$16.2	+ \$16.5
Merchandise Imports	- 11.5	- 12.8	- 13.3	- 12.9	- 15.5
Merchandise Net	+ \$ 2.7	+ \$ 4.6	+ \$ 6.1	+ \$ 3.3	+ \$ 1.0
Travel, Transportation, Investment and Misc. — Net	+ 1.5	+ 1.6	+ 2.2	+ 1.7	+ 1.4
Net Private Goods & Services	+ 4.2	+ 6.2	+ 8.3	+ 5.0	+ 2.4
Private Capital Outflow	- 1.2	- 3.0	- 3.2	- 2.8	- 2.1
U. S. Government Transfers Abroad	- 4.9	- 5.3	- 5.7	- 6.1	- 6.4*
Net of All Above	- \$ 1.9	- \$ 2.1	- \$ 0.6	- \$ 3.9	- \$ 6.1*
Balancing Items					
Changes in Foreign Deposits and Investments in U. S. (incl. long-term)	+ \$ 1.4	+ \$ 1.8	+ \$ 0.7	+ \$ 1.2	+ \$ 4.3
Net Transfers of Gold	0.0	- 0.3	- 0.8	+ 2.3	+ 1.1
Net Errors and Omissions	+ 0.5	+ 0.6	+ 0.7	+ 0.4	+ 0.7
Total Balancing Items	+ \$ 1.9	+ \$ 2.1	+ \$ 0.6	+ \$ 3.9	+ \$ 6.1*

*Contributions to the International Bank, the International Monetary Fund and other international institutions are included in U. S. Government transfers because, once they are made, they are drawn upon at the discretion of those institutions. The 1959 Transfer figure includes a \$1.4 billion U. S. contribution to the International Monetary Fund to add to the reserves of that institution. This is a non-recurring item and unfairly distorts the final result in measuring our 1959 international deficit. Leaving out this contribution, the 1959 deficit would have been about \$4.7 billion.

General Note: Included in the net deficit figures are (i) net increases in long-term U. S. investments by foreigners and (ii) "net errors and omissions," which probably consist substantially of unreported investments in the same category. These items are often eliminated from our international deficit figures in governmental calculations thereof. They amounted to a total of perhaps \$1.7 billion in 1959. Since these so-called long-term investments consist principally of marketable securities, including U. S. Treasury obligations maturing in one year or more, they can be readily sold under normal conditions to permit withdrawal of the proceeds and should in my opinion be included in the U. S. balances being built up by foreigners, rather than deducted from the net annual deficits.

contribution to the International Monetary Fund. The deficit was almost as great as all U. S. Government expenditures, grants and loans abroad.

Balance-of-Payment Prospects

A. General: The future is, of course, far more difficult to analyze than the past. The imponderables and the complexities are too great to permit any definitive conclusions from the evidence at hand. All we can do here is examine dispassionately some of the fundamental forces at work, and try to foresee the changes which seem likely in the next few years.

B. Merchandise Trade: By far the most important element in our balance of payments is merchandise trade and this deserves primary attention, although much of the discussion so far has centered on Government grants and loans abroad. Exports reached their low during the first part of 1959 and recovered substantially last fall. Meanwhile, the rise in imports has slackened since last summer and we again have a modest merchandise surplus. Those who believe our trade position is still healthy think our exports will now continue to outpace our imports. Factors cited are the prospective lifting of foreign restrictions against American goods; probable increases in wage rates abroad; the continuing large research and development outlays here which Europe cannot yet match; and the rapid business recovery in Europe with shortages of labor and industrial capacity likely to follow. On the other side, the considerations include the following:

(1) In many important products, European and Japanese costs are obviously substantially lower than ours, not only in their home markets but also in those of other countries and even in our own. Oil, steel wire, shoes, optical equipment, transistors, and heavy electrical equipment are familiar examples.

(2) Even if foreign restrictions on U. S. goods are lifted, there is no assurance of a major boost to U. S. exports unless our prices abroad are competitive, and it is difficult to find products where such a cost position can confidently be expected. Such consumer-durable fields as automobiles and home appliances are prominent among those where artificial discrimination against U. S. products has been severe, but where cost advantages to us seem to have largely disappeared.

(3) Against the probability of more rapid increases in wage rates abroad than in the U.S.A. must be placed the following:

(a) Labor costs are very much lower abroad than in the U.S.A. to begin with.

(b) There is probably more room for increased labor efficiency in countries where modern, mass-production techniques are relatively new. Furthermore, businessmen abroad are now very favorably disposed toward modernization, whether the techniques used are American or their own. They are rapidly expanding their own research and development activities, and probably get two or three times as much research work done per unit of outlay as we.

(c) The Common Market trend seems to be running strongly in Europe and to have much further to go in permitting large-scale production of optimum size.

(d) Thus, productivity of labor seems to me likely to rise faster abroad than here.

(4) A substantial but indeterminate portion of our present merchandise exports is a direct result of U. S. Government outlays abroad and will decline in proportion to reductions in such outlays.

(5) Merchandise exports include sizable amounts of heavily-subsidized agricultural exports which are completely artificial.

(6) The steady rise in imports into the U.S.A. is likely to persist with continued prosperity here, and with our increasing dependence on foreign sources for many raw materials. Perhaps new tariff and quota restrictions will hold back imports, but major restrictions of this sort seem to me unlikely, until and unless our trade balance becomes obviously critical.

(7) I think the most penetrating insight we can get into our relative competitive position with other countries is provided by the strong, continuing trend among major American industrial corporations to build new plants abroad; to supply foreign markets formerly served from the U.S.A.; and, in a number of cases, the American market itself. Here we see the fruit of careful and well-informed business judgment by experts in each industry as to our relative competitive position.

Where do all of these factors leave us as to our trade prospects? The growth in demand abroad is so rapid that perhaps it will again outrun expanded capacity for a while. Continued boom may again bring an enlarged demand for American goods, just because they are available. Furthermore, jet aircraft exports and subsidized shipments of U. S. cotton will probably be unusually large in 1960. Our exports may well rise faster than imports in the months ahead. However, a temporary bulge due to such factors would merely obscure the basic trends of the last few years and we must be careful to avoid complacency due to temporary improvement in the monthly figures. The danger remains that improvement during the next year, if it occurs, will be followed by later rapid deterioration, particularly if our domestic inflation is not in the meantime brought to a decisive halt.

As for the other elements in our balance of payments, the highlights seem to me as follows:

(1) Our exchange of services abroad (including travel, transportation and income on investments) has been producing declining net surpluses during the last two years. The aggregate surplus was \$2.2 billion in 1957 and is estimated at \$1.4 billion this year. The trends appear to be against us in each of the principal categories and I can see little hope for any important reversal. Eventually the flow of American investment capital abroad should bring a substantial increase in our investment income. Meanwhile, however, most of the earnings from such direct investment are being

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Our investors are sharing in the benefits of this growth. This year, 1960, is the sixth consecutive one in which dividends have been increased.

* * *

*Send for 1959
Annual Report*

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HIGHLIGHTS OF THE YEAR... 1959

Operating Revenues amounted to	\$296,657,874
A new high — an increase of \$24,523,927, or 9%	
Consolidated Net Income was	\$43,196,965
Another new high — up \$4,962,720, or 13%	
Earnings Per Share of Common Stock (average) were	\$1.95
14 cents above the previous year On year-end shares, earnings were \$1.92, up 11 cents	
Dividends Per Share of Common Stock were	\$1.30
Up 10 cents over 1958	
Construction Expenditures totaled	\$178,665,000
Largest in history of the system	
Sales of Electric Energy, in kilowatt hours	20,965,773,000
A new record, up 11%	
Customers Served Directly increased to	1,539,039
53,673 more than in 1958	

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plowed back into local operations and do not enter into our payments balance. Furthermore, the great increase in foreign investments here, coupled with sharply higher U. S. interest rates, has expanded the outflow of investment income faster than the inflow.

(2) There has been some slackening in American private investment abroad during the last two years, but the recent recession probably accounted for most of the decline. The deficit from this source seems to me unlikely to drop below the estimated \$2.3 billion for 1959 and may well increase—barring U. S. Government restrictions on investments abroad such as have been suggested.

(3) U. S. Government transfers abroad, which are estimated at \$6.4 billion in 1959, will undoubtedly decline in the future. The 1959 figures include a \$1.4 billion subscription to the International Monetary Fund, which is presumably non-recurring. Reductions are in prospect both for loans and for expenditures in other countries. However, the requirements of our foreign policy and of our military commitments abroad are so large, and the difficulties of getting our allies to shoulder a major share of these outlays so great, that I find it hard to picture Government-transfer deficits of less than \$4 billion. They may well be larger.

The outlook for the various elements in our balance of payments suggests to me a continuing net deficit position excluding merchandise trade of over \$5 billion per annum, as follows:

Private Services (net)	+ \$1.1 billion
Private Capital Outflow	- \$2.5 billion
U. S. Government Transfers Abroad	- \$4.0 billion
Net, Excluding Merchandise	- \$5.4 billion

Accordingly, to keep our over-all deficit down to a manageable \$1.5 billion or so, we must have a surplus from merchandise trade of almost \$4.0 billion. Perhaps shortages in Europe will be drastic enough to accomplish this. A merchandise trade surplus of over \$2 billion in 1960 is now widely expected. This would be helpful, but hardly enough. It would still leave an over-all deficit of close to \$3 billion per annum. And looking beyond 1960, the prospect seems to me far from re-

assuring, particularly if we fail to halt our steady upward cost pressure. If our merchandise trade surplus should then disappear, the gap in our over-all balance would become truly alarming.

U. S. Gold Reserve and Prospects

Now, we must turn to the reserves available to cover our deficits abroad. The timing of any balance-of-payments crisis, if it comes, will depend on the size of our reserves as well as on future deficits. Figures in recent years for the U. S. gold stock, which is our principal immediate reserve, and for foreign short-term balances in the United States, which can be presented for gold at any time, are set forth in *Table II*.

The figures in *Table II* show steady deterioration from what used to be an impregnable reserve position. Not only has the free portion of our gold stock (beyond what is required for domestic monetary reserves) been cut by one-third during the last two years, but foreign short-term dollar claims now are about equal to our total gold stock. Furthermore, and of prime importance, these short-term claims do not include an estimated \$11.5 billion of so-called long-term U. S. bond and stock investments held by foreigners, a large part of which can and probably would be promptly converted into claims for gold if confidence in the dollar should ebb. Neither do these balances include about \$7 billion of foreign direct and miscellaneous investments in the U.S.A.

Of course, the fact that we can no longer pay off overnight all our obligations abroad is in itself no cause for alarm. The United States is now banker to the world, and such liquidity is abnormal and probably undesirable. Our gold stock is still far larger, both absolutely and relatively than that of any other country, and perhaps \$12 billion of the foreign balances here represent working capital, which must be kept wherever the international clearing is done. Another \$3.3 billion represents balances of international institutions not subject to sudden withdrawal.

The dangers are as follows: First, continuing foreign deficits of \$3 or \$4 billion per annum cannot be maintained indefinitely without a greatly increased gold out-

Table II

End of Year	Total U. S. Gold Stock	Required Monetary Gold Reserves	Free Gold Reserves (billions of dollars)	Foreign Amount	Short-Term % Total Gold	Dollar Balances* % Free Gold
1952	\$23.3	\$12.1	\$11.2	\$10.5	45%	94%
1953	22.1	12.2	9.9	11.6	52	117
1954	21.8	11.8	10.0	12.9	59	129
1955	21.8	12.0	9.8	13.6	62	139
1956	22.1	12.1	10.0	14.9	67	149
1957	22.9	12.1	10.8	15.2	66	141
1958	20.6	12.0	8.6	16.2	79	188
Est. 1959	19.5	12.1	7.3	19.5	100	267

*Foreign Short-Term balances do not include obligations originally maturing in more than one year, Preferred and Common stocks, or direct foreign investments. However, they do include balances amounting to over \$3 billion at December 31, 1959 owned by the International Bank for Reconstruction and Development and the International Monetary Fund the use of which is subject to effective veto by the United States Government through its voting power in those institutions.

flow. Secondly, these deficits may grow even larger if our merchandise trade swings against us in 1961. Finally, now that relatively-liquid balances held here by foreigners are approaching \$31 billion (\$19.5 billion of "short-term" balances plus about \$11.5 billion of other marketable securities), the portion in excess of normal working amounts is probably at least \$4 billion in the "short term" category, and perhaps as much again in longer-term securities. These amounts must be thought of as "hot money." They are likely to be withdrawn whenever the present favorable spread between U. S. and foreign interest rates is reversed, or whenever serious doubts arise as to our willingness to redeem our obligations in gold at \$35 per ounce. In the aggregate, they are probably already as large as our "free" gold reserve.

Crisis Seen as Inevitable

How much further we can carry large international deficits is impossible to forecast. Presumably we can continue to support a \$3 to \$4 billion deficit for another year or two if interest rates here remain high, and if our budgetary outlook and labor settlements do not set off further major inflationary alarms. If Congress adopts the recent suggestion of Bankers Trust Co.'s Vice-President Roy L. Reiersen that we eliminate the required holding of any gold reserves against our domestic money supply, our free reserves would support such an outflow even longer. Unless our merchandise trade figures continue the sharp improvement of recent months, however, our time appears to me to be running out by 1961. Even if such improvement does occur, it may well do no more than postpone a crisis for another year or two.

The timing of such a crisis would, of course, hinge very largely on psychological forces. Doubts as to our anti-inflationary fortitude might be raised by the first signs of a recession here in late 1960 or 1961, by the past winter's labor settlements, or by our presidential campaign this summer. Perhaps the boom abroad will raise foreign interest rates enough to eliminate the attractiveness of yields in this country. If substantial momentum of this sort is generated this year, an upswing in our exports could be completely overwhelmed.

The major test will probably come when business in this country turns down again. Heretofore the Federal Reserve Board has been free to counter our recessions by drastic easing of the money markets. Interest rates have been lowered sharply, and additional reserves have been pumped into the banking system to support further expansion of the money supply. Our international financial position was so strong that the Board could afford to disregard any foreign consequences and concentrate entirely on its domestic objectives. Next time, however, this will almost certainly not be true. The Board's important domestic anti-recession program will probably be interpreted abroad as sowing the seeds of subsequent inflation, and this would come at the very moment when the yield advantage of keeping funds here has disappeared. Thus, our next business recession

looms as unusually critical, both because our international financial position will be severely tested, and because our resiliency at home may be impaired.

The reserves we have been examining so far are only those serving as an immediate buttress to confidence in the dollar. There are also very substantial secondary reserves, which our Government can and undoubtedly will call upon, when and if a run on the dollar should develop; and some of these will probably be marshalled beforehand. This year, for instance, we may well see some advance repayments on long-term debts to the U. S. Treasury. Among the secondary reserves are the following:

(1) The United States has drawing rights on the International Monetary Fund of \$4.1 billion, and an additional borrowing limit of \$1.7 billion;

(2) Short-term claims abroad, owned by Americans, amount to about \$3.5 billion and some or all of these could be requisitioned by our Government. There is a further \$2 billion plus of U. S. Government short-term claims abroad;

(3) The U. S. Government has over \$16 billion of long-term claims and credits abroad;

(4) American investments in stocks and bonds abroad are estimated by the Department of Commerce at about \$8 billion;

(5) Direct and miscellaneous investments by Americans abroad are estimated at about \$30 billion.

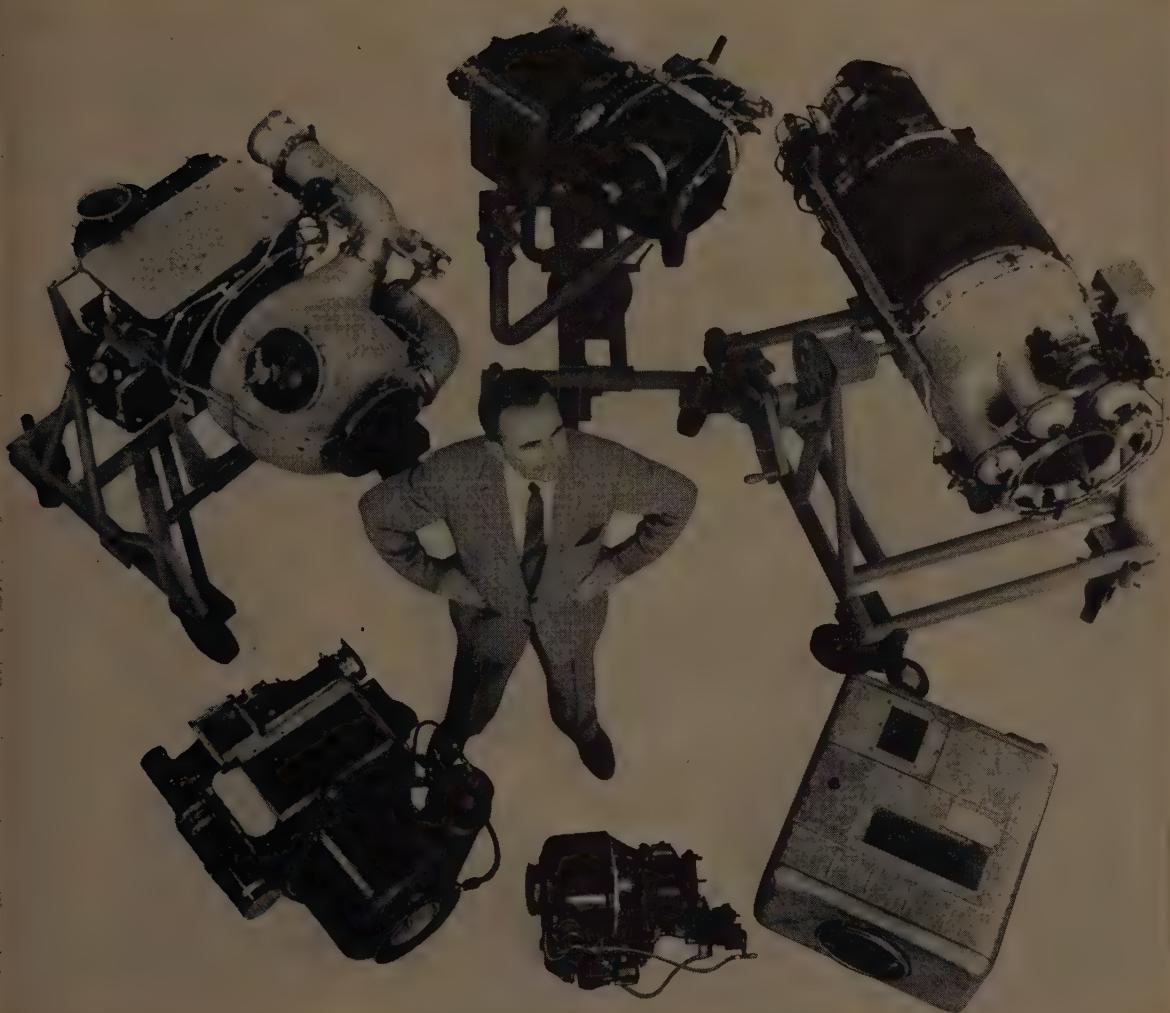
CONCLUSION

For the first time in a generation, the trends in our balance of payments point towards a crisis rather than away from one. Only through an exhaustive analysis of our competitive position in the principal items of trade could one hope to determine definitively whether the equilibrium in our international exchange position has already been lost. The majority view is that we still have time, if we promptly bring our inflation to a halt. This view seems to me overly complacent. There are too many fields where price cuts or government intervention are apparently needed to hold our traditional export and import positions.

Furthermore, serious belt-tightening by the American people seems to me no more likely in this prosperous election year than in any other recent year. When the American people have had things go so well for so long (despite periodic lectures on inflation from various economists and bankers) and when many of our political leaders continue to call for reduced rather than increased financial austerity, why should the public be alarmed?

The only real note of cheer that I can see in the outlook for our international balance of payments is that it depends upon imponderables. Perhaps the conclusions drawn in the preceding analysis are too gloomy; I fervently hope they are. However, it is high time we recognize that we must once again pay close attention to our international payments. Whatever the outcome, we can no longer afford to shove the whole matter under the rug.

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An Evaluation of the Stock Market

by Robert W. Storer

THAT FUNDS HAVE, on balance, been withdrawn from the stock market for more than a year past is indicated by two sets of figures: trading volume and breadth. The latter is the relative number of stocks rising and declining in price. Trading volume reached a high in November, 1958 and breadth a high in March, 1959, and both have been fairly consistently declining most of the time since, while the Standard & Poor's Industrial stock price index reached a high on Aug. 3, 1959, and the Dow-Jones a still higher one on Jan. 5, 1960.

Such a positive divergence has, in the past, been a leading indicator of reversals in the behavior of the averages. Funds can flow into or out of the stock market, in spite of the fact that the seller and the buyer receive and pay the same number of dollars on a particular transaction. There must be, at all times, a supply of funds involved in the market. Its amount will depend upon the volume of trading and upon the typical level of prices at which trades are being made. If both of these decline, the volume of funds engaged is diminishing. Ultimately the level of stock price indexes will reflect this fact.

The ratio of odd-lot *buying* to odd-lot *selling* is a useful measure of the attitudes of the small and usually unsophisticated speculator. His psychology is usually inverse and out of phase with the market. Because the number of shares listed is normally expanding, there is normally a moderate excess of odd-lot buying over selling. When this excess rises markedly—after allowing for a rather strong seasonal variation before and after the year-end—the market is more likely to decline, and conversely. During the stock

price decline, which started last August, there has been no such bearishness evident from the odd-lot ratios as would be expected prior to an important reversal of the down-trend.

It has historically been safer to assume that stock prices will continue in their recent trend line or trend channel, than to assume that they will reverse at any given time. The intermediate trend is clearly down. An even more significant and—in this case—a much longer trend channel has been occupied by the ratio of the 10-day moving average to the 200-day moving average of daily stock prices. This intermediate trend indicator ratio has occupied the same trend channel for the past 17 months. By its construction, this ratio can occupy a trend channel while stock prices are rising, topping-out and declining. There is thus far no evidence of the ratio departing from its 17-month trend channel, and it still has some distance to go before reaching a level typical of past intermediate or major market reversals.

It is worth noting that of several technical indicators of the market all have been showing a steeper down-trend in this cycle than they displayed prior to and during the 1957 stock price decline.

It is a psychological necessity for the stock market at least to appear to be in balance and equally ready to continue its recent trend or to reverse. The actual record of the past half-century demonstrates however, that trends, especially uptrends, continue more persistently than random behavior calls for.

Nevertheless, intermediate moves against the major trend must occur, otherwise there would be all buyers and no sellers or all sellers and no buyers. There must always be at least a substantial minority on each side to make the market a two-way matter.

This occurred more in pre-SEC

manipulated markets than in recent years. The latter have been more one-way streets than formerly, say prior to 1949. At some point during the current episode one may expect a reversal which will be either a technical or intermediate reversal or the beginning of a resumption of the long-term uptrend. Relatively little technical evidence is available to the writer as yet pointing to the proximity of such a turning point. And longer run and fundamental factors argue against such a reversal being a major or long-lasting one, if it occurs in the next 18 months at least. The 12% maximum decline from the high thus far recorded, on a daily basis, is too small to have adequately discounted even a minor turndown in business and earnings. It is even more inadequately discounting any more lasting halting of the postwar upsweep in the economy.

Stock Market Leading Indicators

Of the 10 economic, monetary and technical indicators which the writer maintains as having in the past almost always turned in advance of important downturns in stock prices, eight turned down prior to the start of the steel strike. Analysis of the record of each of these series, in relation to the date of downturns in the stock price averages, indicates that the average of the indicated dates for stock prices to turn down in this cycle is May, 1960 (*Table I*). The past variability in timing of these indicators leaves it entirely possible that the high of this 18-year-old bull market was witnessed last August. The probable significance of the leading indicators in the present situation is that they call for a downturn soon enough to render it difficult for the market to recover to a new high within the next few months.

These stock-leading indicators include technical, business-cycle and

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Table I
STOCK MARKET LEADING INDICATORS

Indicator	No. of Months Lead Over Stock Market Peaks					Most Recent Peak of Indicator	Average No. of Months Lead of Indicator Over Stock Market (all cycles)	No. of Months Present Decline of Indicator	Indicated Peak of Stock Market Month Year
	7/56	12/52	5/46	2/37	8/29				
Ratio of Bank Investments to Bank Loans	21	39	18	6	18	Aug. 58	19.4	18	Apr. 1960
Percent Change in Deposits and Currency	15	6	33	18	16	Jan. 59	17.6	13	July 1960
Net Borrowed or Net Free Reserves	23	9	3	13	18	July 58	13.2	19	Sept. 1959
Failure Liabilities	21	20	18	4	6	July 59	12.8	7	Aug. 1960
Ratio of Bank Debits to Bank Loans	15	29	12	7	-1	Aug. 59	12.4	5	Sept. 1960
Average Daily Trading Volume	17	22	4	11	7	Dec. 58	12.2	14	Jan. 1960
Ratio of Sales to Inventories									
Durable Goods	12	26	12	2	8	May 59	12.0	8	May 1960
Average Hours Marked	7	24	17	2	5	June 59	11.0	8	May 1960
Customers Free Credit Balances	18	22	3	1	NA	Mar. 59	11.0	11	Feb. 1960
Ratio of Low Priced to High Grade Common Stock	16	14	3	-1	10	Apr. 59	8.4	10	Jan. 1960

Median: Either April or May 1960

monetary factors, all of which are participating in the signals noted above.

In terms of the longer-term valuation of stocks, even present prices involve a historically high degree of *overvaluation* (ratio of actual stock prices to fair value) of the fair value of the stock price averages—49% as compared with a high mark of 67% as of last July 31. The fair value of the Standard & Poor's 425 Industrials has risen to a record high point, 40.25; but the rise has been very slow for several years, being held down by the rise in bond yields, as a factor tending to offset the rise in earnings and dividends. In past major market swings, stocks have typically not reversed upward until they had declined substantially below their fair value, as we compute it. Our method of computation yields results not substantially different from those obtained by applying Benjamin Graham's formula for "central value" or "intrinsic value."

Possible Longer-Term Cycle

Economic literature contains many references to business cycles of varying lengths. We are most familiar with something like a 30-month to 40-month cycle, which has repeatedly been in evidence during the postwar economy. Examination of economic statistics over many

years suggests that the entire period since 1946 has constituted the rising phase of one longer cycle. Investment policy depends importantly upon this question. For if the economy is to experience nothing worse than the rather brief and mild recessions, since the end of World War II, and their stock market counterparts, we have already witnessed a considerable proportion of the stock price decline commensurate therewith. The post-1945 declines in the S. & P. 425 Industrials have been as follows: (month-end prices)

(Month-end data)	Decline
1946-48	25.39%
1948-49	15.97
1952-53	13.35
1956-57	13.28
1957	17.41
July 1959 - Jan. 1960	8.71

If, however, there is in prospect a more substantial interruption to the growth of earnings and dividends (by which the basic overvaluation of stocks in recent years has been rationalized) the moderate percentage drop in most stocks to the end of January may be a smaller proportion of a larger total setback than we have seen in the postwar years. Under such conditions it may not be too late to sell and it may be too early to buy.

Is there any evidence pointing to such a longer downswing this time?

Some important measures of economic activity have gradually decreased their rate of rise since 1945. This is true of Gross National Product and also industrial production. It is also true of total personal debt—short-term and long-term (mortgage) debt.

Long-cycle symptoms are evident in various phases of the monetary economy (*Table II*). During the years 1934-1951 monetary statistics were recording an abnormal condition of arrested economic growth and corresponding excess monetary liquidity in the economy, on the part of individuals, businesses and banks. This liquidity first created by the large gold inflows and the stagnation of the later recession years, was reinforced by the inflationary financing of World War II and by the postwar pace of bank deposit creation resulting from the continued price-pegging of Treasury open-market debt by the Federal Reserve Board.

During the 1950's economic liquidity has diminished to its pre-1932 normal. Idle balances have been activated as deposit creation has been held well below the pace of expansion of total dollar payments.

This increased pace of deposit velocity is the direct concomitant of lowered liquidity, and just as there is a lower tolerable limit of liquid-

Table II

**Evidence of Long-Term
Business Cycle**

**Series Showing Declining Rate of Rise
During Postwar Years:**

Gross National Product

Total Consumer Debt in dollars
(Long Term and Short Term)

Industrial Production (F. R. B.)

Consumer Installment Debt as a %
of Disposable Personal Income

Consumer Installment Debt in
dollars

"Fair Value" of Industrial Common
Stocks (since 1951)

Net Earnings on Standard & Poors
425 Industrials

**Series Bottoming Out or Approaching
Past Cyclical Lows:**

Bank Liquidity (Ratio of Bank In-
vestments to Bank Loans)

Corporate Liquidity Ratio (cash and
and short treasury securities di-
vided by total current liabilities)

Series Showing Adverse Trend:

Rate of Net Return on Net Worth
of Manufacturing Companies

Ratio of Consumer Credit Extended
& Repaid (since 1950)

**Series Approaching Past
Cyclical Highs:**

G.N.P. Income velocity of money

Relative cost of financing by
Bonds/Stocks

Failure Liabilities

Growing Divergence over period of
several years:

Industrial production capacity in
relation to production and con-
sumption.

ity, so there is a corresponding and
resulting upper limit of deposit vel-
ocity.

What this means in terms of eco-
nomic growth is that if we expect to
continue the postwar rate of growth,
the banking system must acquire
more debts, in the form of loans or
investments. If money *velocity* can no
longer be depended on to rise
rapidly, the money *supply* (bank de-
mand deposits and currency) must
rise faster than before to finance
rapid economic growth. But such an
accelerated expansion of deposits
would be at a time when consumers
have for several years been slowing
the rate at which they have been in-
curring additional debt.

Before Congress could debate to
a policy conclusion the complex and

Table III

National Income Series

	National Income	(billions of dollars)	Corporate Income after Taxes Not Adjusted for Inventory Valuation	Ratio of Corporate Income after Taxes to National Income
			%	
1929	87.8	8.3	9.4%	High
1930	75.7	2.5	3.30	
1931	59.7	-1.3	-2.18	
1932	42.5	-3.4	-6.48	Low
1933	40.2	-4	-1.00	
1934	49.0	1.0	2.04	
1935	57.1	2.2	3.85	
1936	64.9	4.3	6.63	High
1937	73.6	4.7	6.39	
1938	67.6	2.3	3.40	Low
1939	72.8	5.0	6.87	
1940	81.6	6.5	7.97	
1941	104.7	9.4	8.98	High
1942	137.7	9.5	6.90	
1943	170.3	10.5	6.17	
1944	182.6	10.4	5.70	
1945	181.2	8.3	4.58	Low
1946	180.9	13.4	7.41	
1947	198.2	18.2	9.18	
1948	223.5	20.5	9.17	
1949	217.7	16.0	7.35	
1950	241.9	22.8	9.43	High
1951	279.3	19.7	7.05	
1952	292.2	17.2	5.89	
1953	305.6	18.1	5.92	
1954	301.8	16.8	5.57	Low
1955	330.2	23.0	6.97	High
1956	350.8	23.5	6.70	
1957	366.5	22.2	6.06	
1958	366.2	18.9	5.16	Low
1959	398.5	23.7*	5.95	High

*(4th Quarter Estimated).

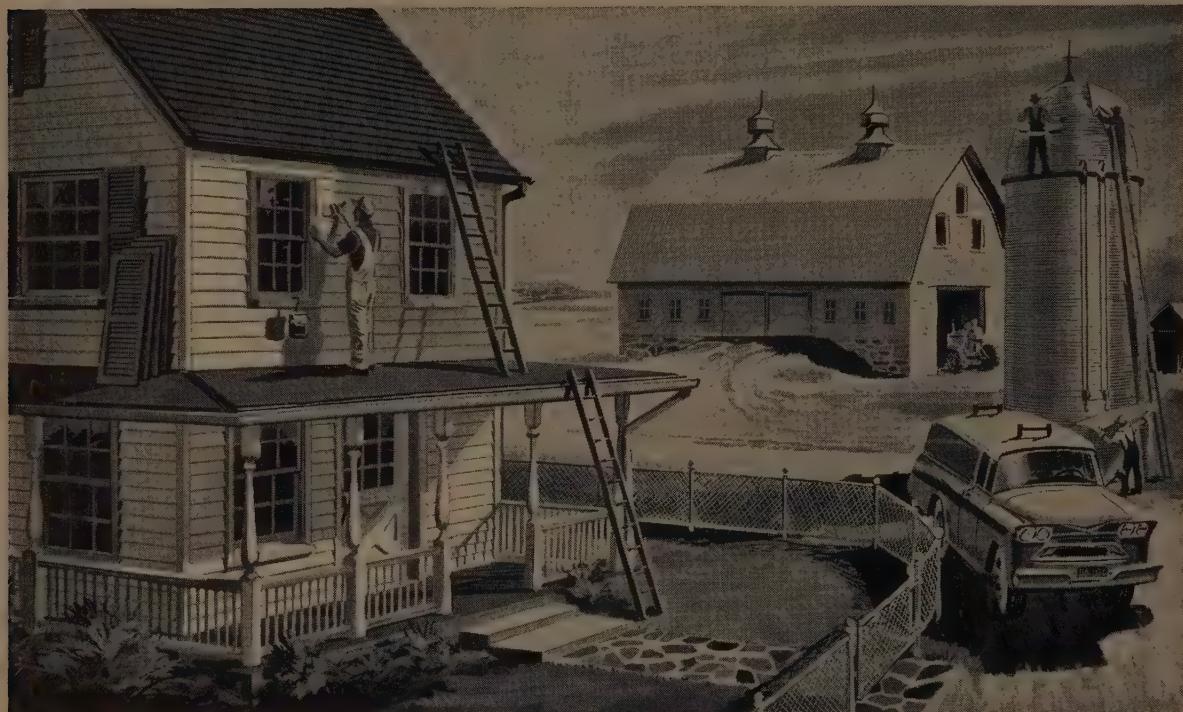
controversial issues of public pol-
icy that are involved, the economy
could be subject to retarded growth
for some time.

There is some evidence that our
capacity to produce has been tend-
ing for at least the past decade, to
outrun our actual consumption. In-
dustrial capacity is impossible to
define and to measure satisfactorily,
but differential trends lead to this
conclusion. Much of this capacity
has been installed in response to the
shortages of labor during the 1950's.
One can argue that the prospective
doubling of the rate of young people
growing into the potential labor sup-
ply, will raise production. But if the
resulting labor supply renders less
necessary the rapid mechanizing and
automating of production, the capi-
tal goods industries will be less busy
and the problem of unemployment
could thus be more, rather than less
pressing.

Related to the foregoing is the
trend of earnings. For what keeps
stock prices up in the long run is
earnings, either earnings paid out
in dividends or earnings *not* paid out,
but reinvested in the business
to compound—hopefully—at 12%–
20% a year.

In years of high prosperity one
should be able to expect business
earnings to constitute a higher than
normal percentage of national in-
come or Gross National Product.
But neither the level nor the trend
in this regard is particularly inspir-
ing. Corporate profits, after taxes,
in 1929 were equivalent to 9.4% of
the U. S. National Income. They
were well below this in the 1930's,
hit 9.0% in 1941, fell, reached
9.2% in 1947 and 1948, 9.4% in
1950, and have since run at lower
levels. At the 1955 peak, the figure
was only 7.0% and the trend was
downward for the ensuing three

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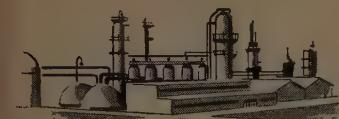
zinc and lead pigments and oxides ★ special purpose electric power supplies ★ electronic grade germanium, gallium, cadmium sulphide ★ Sulphuric acid ★ Slab inc ★ Cadmium ★ Chat.

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years. In 1959 it was 6.1%. The trend of the figures at cyclical high and low points has, in recent years, been downwards at a substantial normal absolute level (*Table III*).

International Factors

Partly with the assistance of gold reserves and other aid from the U. S. the remainder of the industrial world has improved its international trade and balance of payments, to the point where many currencies are rather freely convertible, and capital moves in search of high short-term interest rates in a manner increasingly reminiscent of 1914 and prior years of the world-wide international gold standard.

What this situation meant then, and increasingly means now, is that the central banking authorities are limited in their use of monetary policy to further *purely national* objectives inconsistent with international monetary stability. They are limited by the extent that either foreign or domestic capital is sufficiently mobile to leave and thus lead to important gold flows. The latter in turn, have effects upon the money supply that can be of a magnitude difficult or even dangerous to offset by central bank action.

The U. S. position in these respects, while very far from critical, is not comfortable with foreign short-term dollar claims rising close to \$4 billions a year over the past two years, and with less than half represented by gold outflows.

While there is little evidence that the U. S. is "pricing itself out of world markets," some important changes in the components of our balance of payments will have to occur. Such changes are not likely to improve business profit margins here, or to raise the level of commodity prices.

The Subjective Valuation of Stocks

The foregoing recital of events and considerations may doubtless be interpreted in various ways. It appears that in the aggregate they constitute an accumulation of actual or impending changes in the economy and its markets. These changes and the necessary adjustments to them involve uncertainties. Uncertainty

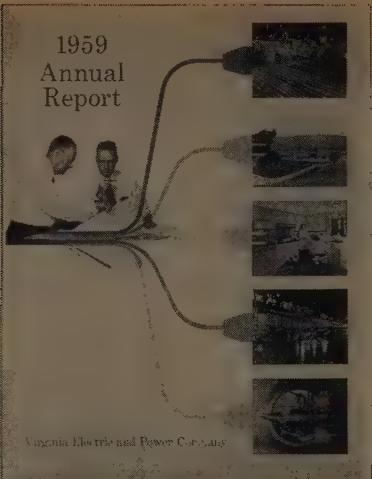
inherently requires conservative rather than liberal valuations of assets and of the earnings which confer value upon them. Additionally, uncertainty often increases popular preferences for liquidity. It is not necessary that the uncertainties in fact result in harm to the economy; objective stock and other values may remain unimpaired and still be subjectively appraised on a more conservative basis in the open markets by reason of uncertainties. The process can go further, of course, in the event that tangible damage results. The fair value—as we compute it—of the S. & P. 425 Industrials could remain intact at 40.25, but a decline in the actual price level to that point would involve a further decline in the index of nearly 30%, and a total fall from the 1959 high of 37½% of which less than a quarter has yet occurred.

Inflation

Holders of stocks are avid readers of *ex post facto* rationalizations of what has happened, and inflation has had a tremendous vogue among all ranks of people interested in stocks. The various concepts included in the term have played an important role during recent years in the market advance. We are now hearing much less about inflation. The vogue is vanishing with little comment on its passing and the market significance of it. Several of the developments recounted herein are more likely to hold commodity prices down than to push them up. It will take time for the market to replace this rationalization with another one equally serviceable.

The success of a combination of public policy, the longer term cycle upswing and good luck—in some unknown proportion—in maintaining, for 14 years, a high-level economy of abundance has led to a widespread confidence that the first of these three factors has been responsible. With the prompt emergence of the economy—and the level of stock prices—from each successive postwar minor recession, popular confidence has grown in the efficacy of public policies in perpetuating those conditions. It is precisely this assumed predictability of prosperity

the
measure
of
PROGRESS



Progress can be a tangible thing . . . measured and evaluated, set forth in figures. More elusive but equally important is the *feel* of progress—the potential of a people and an area. Serving home, farm and industry in this growing area, Vepco keeps its finger on a strong and steady pulse. It is a part of our progress. In our 1959 Annual Report we have attempted to capture both. The *tangible*—the facts and figures, measurements and evaluations. The *potential*—the energy of a people, the plans . . . the promise. *1959 was our 50th year of progress.*

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1959 HIGHLIGHTS

	1959	Increase over 1958
Property and Plant	\$665,000,000	\$40,000,000
Operating Revenues	\$150,856,000	\$11,196,000
Balance for Common Stock	\$ 25,392,000	\$ 1,855,000
Earnings per share (14,910,000 shs. 1959— 14,200,000 shs. 1958)	\$1.70	\$.04
Number of Customers	840,000	25,700
Electric Sales—thousands of kwh	7,503,000	820,000
Service Area Peak Load—kw	1,617,000	178,000
Gas Sales—thousands of cubic feet	6,967,000	153,000



VIRGINIA ELECTRIC AND POWER COMPANY
7th and Franklin Streets, Richmond, Virginia

which accounts for the historically high valuations recently — and still — being placed upon earnings, dividend and projected growth in them. These overvaluations are still too close to their peaks to be appropriate to the number and magnitude of the uncertainties currently becoming visible.

It is desirable to distinguish voluntary from involuntary investment actions. The volume of credit *directly* dependent upon stock price quotations appears to be so low as to expose the market to a vanishing risk of forced sales of stocks on margin calls. Hence, whatever is in store for stock prices seems likely to result from *voluntary* decisions on the part of buyers and sellers. The reaching of new decisions could be a protracted process, after the 18-year bull market.

SUMMARY

When several lines have been converging for some time it is possible (depending upon the straightness of the lines and the scatter of the indicated crossing-points) to project the resulting pattern. In the foregoing we have attempted to set forth evidence of several such converging lines. The lines represent several kinds of approach to the valuation of stocks — the objective: "fair-value" approach; the subjective influences; the element of the short-term and long-term business cycle; the vital and controlling twin dynamics of money supply and money velocity. We have attempted to convey some perspective on the short, intermediate and long cyclical swings in stock prices.

It seems to us that enough of these lines are converging in an unfavorable sense, as to cause uneasiness concerning intermediate and longer-term prospects for stock prices without necessarily impairing the quarter-century to quarter-century upward trend of these.

In the process of arriving at the attitudes and conclusions expressed herein, we have examined the sources of the money, profits and motivations which were the genesis of this 18-year-old bull market. It is the stupendous size, strength and persistence of these that nourish our doubts when we perceive evidences of their gradual diminishing, fulfillment, or exhaustion.

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STOCK MARKET OUTLOOK

by Edmund W. Tabell

IT HAS LONG BEEN one of the writer's favorite theses that stock prices are determined by four factors. These are: earnings, dividends, money rates, and investor confidence.

The first two, earnings and dividends, are extremely tangible, and the art or science of analyzing and predicting them probably occupies 95% of all the time devoted to financial analysis. The third, money rates, is also tangible and is undoubtedly taken into account by most analysts in determining appropriate future capitalization rates to be applied to earnings and dividends. However, the fourth factor, investor confidence, is truly intangible. Still, it is of sufficient magnitude to create possible variances of as much as 100% in stock prices. Anyone familiar with equity markets can quote numerous examples of stocks where earnings have shown little or no improvement over the past few years, but which have doubled due to improvement in the multiplier applied to those earnings.

The present is a particularly advantageous time to talk about investor confidence. The year just past represents the anniversary of both a major peak and a major bottom in investor confidence. The peak, obviously enough, was 1929. In fact, the blind faith rampant during that period is better described as speculative frenzy, rather than confidence. What many Financial Analysts fail to realize, however, is that 1949, in its own way, represented an equally important turning point in the market. At that time, investor confidence reached a low which had never been previously attained in recent stock market history. True, prices were considerably lower in 1932, but in 1932, twenty years of depression and World War were ahead of us. In 1949, despite the fact that we were on the verge of the most prosperous decade in our history, blue chip stocks could be bought at seven to eight times earnings to yield better than 6%.

The years 1929 and 1949, therefore, represent two major extremes in investor confidence which have occurred in the past 30 years. It is highly probable that equally extreme levels will not again occur within the lifetime of anyone old enough to read this article.

Despite the fact that swings may be somewhat less violent, investor confidence will still remain the major

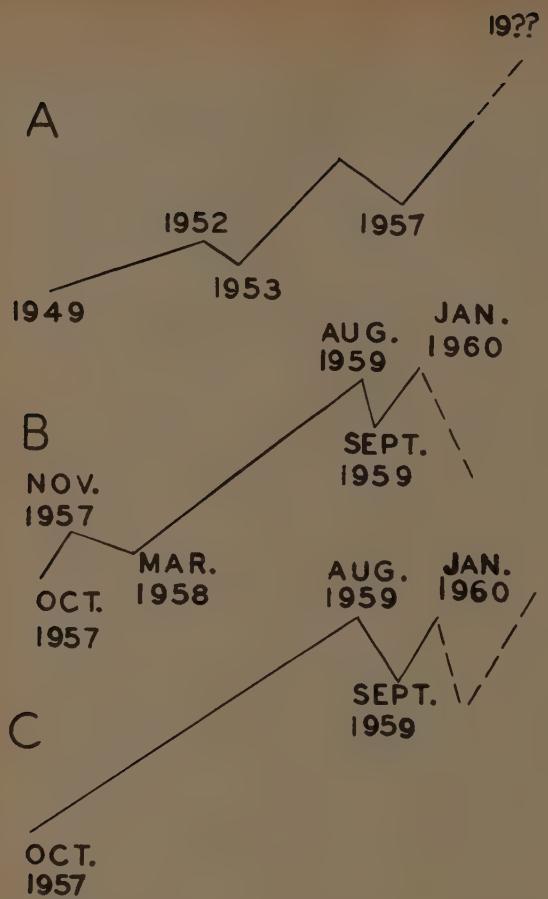
factor in determining stock levels. The writer has always felt that the best—and probably the only accurate means of forecasting this investor confidence factor—is the technical analysis of the equity market itself. To this end, we maintain an extensive library of charts and graphs giving various data on stock price movements going back for many years. This work, when combined with fundamental analysis, can, we believe, provide the most logical approach to the problem of forecasting the future course of stock prices. Let us, then, look at the current equity market in terms of some of the technical barometers discussed above. As this article is written, the market reached a low in mid-February, rallied, and penetrated this low in mid-March. A major problem for the forecaster then, is determining whether the current activity is a base formation for an intermediate term advance, or a corrective phase in a bear market.

One of the most useful long-term technical tools is a cycle theory, less well known than the Dow Theory, but probably more valuable from a forecasting point of view. This is *Elliott's Wave Principle*, a fitting principle to discuss in the pages of this magazine since the most extensive work on it has been done by Hamilton Bolton, president of the National Federation of Financial Analysts Societies, and a partner in the Montreal firm of Bolton, Tremblay & Co. This principle divides major market cycles into five waves, three in the direction of the primary trend and two intermediate contra-cyclical waves. A breakdown of the entire bull market since 1949, according to this principle, is shown in the accompanying graph, Figure "A."

The present position of the market, according to this Principle, depends on how we break down the fifth or final phase of this market which began in 1957. If we break it down, as in Figure "B," the rise from September 1959 to January 1960, constituted the final upward surge of the bull market. This appears unlikely for a number of reasons. Such a phase should normally take place on increased volume with heightened speculation. These factors were, of course, not present in the September-January rise. It, therefore, seems more plausible that the final phase should be broken down according to Figure "C." In this case, the entire advance from October 1957 to August 1959 can be considered an upward move; and the advance from September 1959 to January 1960 constitutes a third phase. The current decline then becomes a fourth phase or correction, to be followed by a later advance.

Although *Elliott's Wave Principle* is important, other technical devices must be taken into consideration if

Edmund W. Tabell, director of institutional research for Walston & Co., has a national reputation as a market Analyst. He is consulted by many companies in the U. S., Canada, England and Scotland. His findings are based on both fundamental and technical market analysis.



valid investment decisions are going to be made. One of these technical media is point-and-figure charts of which we maintain an extensive 2,000-chart library. A point and figure chart on the Dow-Jones Industrial average, showing the distribution area formed in late 1959-early 1960, gave various downside objectives. The highest of these was 605, the lowest 550. It will be noted, of course, that either objective is consistent with the interpretations of the *Elliott Wave Principle* outlined above. If the interpretation of Figure "C" is valid, an intermediate term rally will shortly begin. This coincides with the reaching of the upper limit of a downside objective of 605 in February and March. If the Figure "B" interpretation, is the valid one, the lower downside objective, 550, is yet to be reached, and the market will work lower.

So far, we are still on relatively shaky ground in trying to achieve a decision as to whether to buy or sell equities. Our position, however, can be clarified by reference to still another set of technical market indicators, breadth-of-the-market graphs. These graphs attempt to measure such things as upside volume or accumulation, downside volume or liquidation, advances, declines, etc. These ratios turned highly unfavorable in 1959 as the market advanced with little

accompanying rise in sustained buying pressure. However, the January-February decline was accomplished without any sustained rise in liquidating volume.

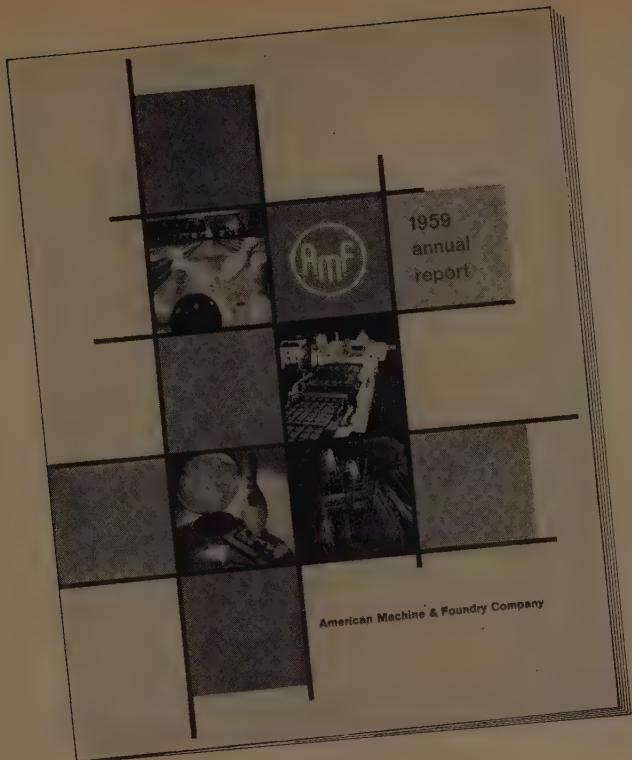
Thus, the future action of these indicators will be very important. One of two things will take place. Either little improvement in breadth will be seen, in which case it will be possible to suggest that the market will decline to new lows, or the breadth indicators will show continued improvement. It will then be possible to realize, by hindsight, that an important intermediate term bottom was reached in February-March. Thus, probably by the time this article appears in print, technical work will have suggested the fairly important program of equity purchase. The only unresolved question at this writing is whether this suggestion will be made at or around current levels, or on a decline to around the 550 range in the Dow-Jones Industrials. All of the above, of course, constitutes a guess as to the short-term or intermediate term action of the market. Where does this fit in to the longer range outlook?

For the longer range, my best guess would be that we are entering a long period which will very possibly be contained by the low of 550, mentioned above, and a possible high of 750. Going back for a moment to Elliott's Principle, it will be remembered that we are either in or will, before too long, enter the second or correctionary phase of a major upswing which began in 1949. Such phases usually take the form of a fairly lengthy consolidation rather than a sharp correction. Furthermore, the investor confidence factor, mentioned previously, is now at relatively high levels. It is, therefore, unreasonable to expect a change in confidence to bring about a major upturn in stock prices, such as was the case in 1953 to 1956, or 1957 to 1960. This type of thinking also seems to favor the idea of a market which will be contained in a broad trading range over a period of time.

This market, however, will undoubtedly have many characteristics which will differentiate it from its predecessors. One such characteristic will undoubtedly be extreme selectivity. We have already witnessed, in the 1957 decline, an example of how selectivity can work. Although this decline was one of the sharpest in recent history, it was possible, throughout the period, to remain fully invested in stocks in groups such as drugs, grocery chains, foods, tobaccos, etc., and actually show gains rather than losses. This type of action will undoubtedly continue during the wide trading range I envision over the next two or three years. The averages may do nothing, but moves in individual stocks up and down may be of extreme importance.

In summary, then, if the reader wishes to make a prediction as to the level of the Dow-Jones Industrial average three years from now, perhaps the best method would be to pick up the paper and predict a figure equal to the previous night's close. Whether at the end of this period an equity investment program will have been successful, will depend largely on the individual investor's or Analyst's ability to select suitable stocks. It will be a period which will separate men from boys.

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A Mathematical Approach To Growth Stock Valuation

by O. K. Burrell

IT IS AXIOMATIC that the proper valuation of any commercial asset is the total of future benefits (whether as income or future sale price) discounted down to the present, at an interest rate consistent with the risk and the current level of interest rates.¹

But future returns cannot be predicted with any precision except in the case of bonds, or stocks that carry a guaranteed but limited dividend. This only means that valuation is an estimating process. The valuation of investment instruments with highly certain returns can be estimated quite closely. But this does not mean that such valuation once made will remain unchanged. This is because changes in the rate of interest or capitalization rate lead to a change in valuation even when there is no change in the certainty of returns. Long-term United States bonds, for example, have fluctuated widely in price, in response to interest rate changes, even though there has been no change in expectation of continued payment of interest and eventual payment of principal.

The valuation of variable return investment instruments, such as common stocks, may under some circumstances present no particular theoretical problem of valuation. When the current return on a common stock is reasonably indicative of future returns (i.e., when there is no particular reason to expect either an increase or a decrease in the return), or perhaps where the chances of an increase are about equal to the chances of a decrease, the problem is largely that of selection of correct rate of capitalization. This capitalization rate, which presumably should bear some relation to current levels of interest rates, can then be simply divided into the current annual income to arrive at an estimated valuation.

We are concerned here with a rational approach to the valuation of variable return investment instruments, where there seem to be reasonable grounds for anticipating an increase in returns of some magnitude over some period of time. Many common stocks are currently selling at prices which afford the buyer a dividend

yield substantially less than that available on short-term United States bonds. Indeed, the average yield on all common stocks is less than that available on high grade bonds. It must be concluded that either typical stock prices are irrational and unwarranted, or that these prices include some capitalization of anticipated increases in returns.

There are two sides to the practical problem faced by the investor who must deal with valuation of growth stocks.

1. The proper method of valuation of a given investment instrument, taking into account an assumed capitalization rate, and a specific assumption of rate and duration of growth.

2. Determining on the basis of various assumptions what rate of growth is implicit in a given current price. We may call this a process of testing the price. What rate of growth is required to justify the current price, and is this growth rate believable in the light of the investor's view of the probabilities of the future, and in the light of the past record of growth? It is clear that there is no one single answer to this part of the problem, since the expectation may involve not only varying rates of growth, but also varying periods of growth, as well as varying expectations of yield rate at the end of the period of growth. But these alternative answers help, rather than hinder, the qualitative judgment of the reasonableness of the current price.

However, these two facets of the problem do not require two solutions. It is necessary merely to develop various valuations based upon different combinations of expectations of the future. If one of these sets of expectations includes the one considered reasonable by the investor, the resultant valuation is his best estimate of the proper valuation even though it differs from the current price. If one of the sets of expectations results in a valuation that does approximate the current price, then this set of expectations is one of those which must be considered attainable if the current price is to be justified. This will be shown in the following illustration.

1. Footnotes appear at end of article.

ILLUSTRATIVE PROBLEM—DUPONT

O. K. Burrell is professor of finance in the School of Business Administration, University of Oregon. He is a Certified Public Accountant and author of several monographs on financial and investment topics. Professor Burrell has written numerous articles for financial publications, including *The Financial Analysts Journal*.

As this is written the common stock of duPont is selling for \$230 with a current annual dividend rate of \$6, and earnings per share of about \$9 for the year just ended. The dividend yield at this price is 2.6%. What is a rational valuation based on various assumptions of growth over a 20 year period.

Table I

Present Dividend	Assumed Growth Rate	Amount of \$1 at Various Rates	Expected Future Dividend	Capitalization Rate	Future Selling Price	Discount Factor 20 Yrs. 5%	Estimated Present Value
\$6	4%	2.191	\$13.15	4.25%	309.41	0.376	116.33
6	5	2.653	15.92	4.25	374.58	0.376	140.84
6	6	3.207	19.24	4.25	452.70	0.376	170.21

Although it is not necessarily a controlling factor, it is useful to measure the past rate of growth in dividend. In 1939 the duPont dividend was \$7. But since there was a 4 for 1 stock split in 1949, this is equal to \$1.75 on the present stock. It would be incorrect to determine the annual rate of growth by simply dividing this total growth by 20. What we want to determine is the compound rate of growth, and here we must turn to tables that show the compound amount of \$1. Each dollar of 1939 dividend grew to \$3.43 ($\$6.00 \div \1.75). Turning now to the following figures we find that the amounts of \$1 for 20 years at varying rates of interest are as follows: 2%, 1.485; 3%, 1.806; 4%, 2.191; 5%, 2.653; 6%, 3.207; 7%, 3.869.

The compound rate of dividend growth for the past 20 years then was slightly more than 6%. In view of the fact that the period covered was one of extraordinary growth in the economy, it would not be conservative to assume a growth rate in excess of 6%. Accordingly, valuations will be developed on the assumptions of growth at the rates of 4%, 5%, and 6%.

The level of investor expectations, two decades hence, is an important ingredient in our appraisal of duPont. Will the market price of the stock rise in proportion to our expectation of increase in returns? It is quite possible that dividends might increase as expected, but that the market price of the stock might not increase, or at least might not increase proportionately. It depends on the level of investor expectations at that time. This, of course, cannot be predicted with any exactitude. But some clues may be available. One of these is the past relationship of dividends to market price; another has to do with current stock market levels and the present appraisal of the prospects of the economy beyond a 20 year period.

Likely to Keep Up with the Times

Although it would seem to be true that rapid growth cannot continue forever, it must be noted that the management of duPont has always been research minded and has displayed an exceptional ability to develop new products and generally to adapt itself to the times. It is unlikely that this would come to a sudden end in just two decades. But we must take account of the present high level of the stock market (at time of this writing) and the low level of stock yields in relation to bond yields. Moreover, we must bear in mind that the present dividend represents a fuller payout of earnings than did the 1939 dividend. The stock has very rarely yielded as little as the present 2.6%; and over the past

20 years yields as high as 4.5% to 5.0% have been available. It would be unconservative to use a capitalization rate as low as 2.6% and unduly pessimistic to use a rate as high as 5.0%. Taking everything into consideration a capitalization rate of 4.25% would seem to be appropriate.

In our tentative valuation, what rate of discount should be applied to this set of expectations? What overall rate of return on investment should be expected? Since our set of expectations may be either too optimistic or too pessimistic, it would seem reasonable to use a rate that approximates the rate of return available on high grade bonds. For the purpose of this illustration, then, a discount rate of 5% will be used since this is close to the high-grade bond rate.

On the basis of these expectations, then, the value of duPont is the sum of the present values of two distinct elements. One of these is the present value (at 5%) of the estimated selling price 20 years hence. The other is the present value (at 5%) of an annuity of the expected increasing dividends.

The expected selling price, 20 years hence, is the expected dividend at that time divided by the assumed capitalization rate of 4.25%. The expected dividend, of course, varies according to the assumed rate of growth. The expected future dividend is the present dividend of \$6, multiplied by the amount of \$1 for 20 years, at an interest rate equal to the expected growth rate. The present value of this future selling price can then be determined by multiplying by the present value of \$1 for 20 years at the assumed capitalization rate of 5%. These present values are developed in *Table I*.

This series of benefits cannot be treated as a simple annuity since the payments are assumed to be increasing at varying rates over the period. But this means only that each assumed future dividend will have to be discounted back to the present and the sum of the 20 separate present values determined. We assume that dividends will be paid at the end of years. The amount of the dividend each year is found by multiplying the present dividend of \$6 by the amount of \$1 for the appropriate number of years at the assumed growth rate. The amount of each expected dividend is then discounted back to the present by multiplying by the present value of \$1 for the appropriate number of years. *Table II* shows this computation for the assumed growth rate of 6%. Tables showing the accumulation of present values of dividends at 4.0% and 5.0% are not shown.

Table II

Year	Amount of \$1 at 6%	Present Dividend	Expected Dividend	Present Value of \$1 at 5%	Present Value of Dividend
1	1.060	\$6	6.36	0.952	6.05
2	1.123	6	6.74	0.907	6.11
3	1.191	6	7.14	0.863	6.16
4	1.262	6	7.57	0.822	6.22
5	1.333	6	8.03	0.783	6.28
6	1.418	6	8.51	0.746	6.35
7	1.503	6	9.01	0.710	6.40
8	1.593	6	9.56	0.676	6.46
9	1.689	6	10.13	0.644	6.52
10	1.790	6	10.74	0.613	6.58
11	1.898	6	11.39	0.584	6.66
12	2.012	6	12.07	0.556	6.71
13	2.132	6	12.79	0.530	6.78
14	2.260	6	13.56	0.505	6.85
15	2.396	6	14.38	0.481	6.92
16	2.540	6	15.24	0.458	6.98
17	2.692	6	16.15	0.436	7.04
18	2.854	6	17.12	0.415	7.10
19	3.025	6	18.15	0.395	7.17
20	3.207	6	19.24	0.376	7.23
		Total		132.57	

It is now possible to assemble this valuation data. On the basis of a 20 year period, a discount factor of 5%, an assumed dividend yield at the end of 20 years of 4.25%, and varying growth rates, the valuations would be developed as shown in *Table III*.

Table III

Estimated Growth Rate	Present Value of Anticipated Future Selling Price	Present Value of 20 Years of Growing Dividends	Estimated Valuation
4%	116.33	\$108.49	224.82
5	140.84	120.00	260.84
6	170.21	132.57	302.78

The valuation estimate which most closely approximates the current price of \$230 is that associated with an anticipated growth rate of 4%. This compares with an actual compound rate of growth in dividend of about 6% over the period 1939-1959. But it should be noted that these estimates are dependent upon reasonable accuracy in the selection of the discount factor, and the anticipated future yield on the anticipated future dividend. If these latter two estimates are reasonably valid, or if it can be shown that a variation in the estimate would have little influence on the final valuation, then *Table III* might be regarded as reliable.

Now, this does not imply that the duPont dividend will increase at a 4% compound rate for the next 20

years. It might grow faster or slower or even not grow at all. All that *Table III* does is to translate the present price into a reasonable measure of investor expectations. If an investor believes that the prospect for expansion in the return from duPont over the next 20 years is higher than a compound rate of 4%, he would logically regard the stock as underpriced. If he regarded this rate of growth as unreasonably high, he would logically regard the stock as overpriced.

It is possible to defend the discount factor on something like an absolute basis. We are estimating the value now, and the high grade bond rate now approximates 5%. This rate may change in the future, but this is immaterial because we are interested in estimating valuation as of now and not as of some time in the future.

The estimate of the dividend yield at which duPont will sell in 20 years cannot be defended on any such absolute basis. This estimate of 4.25% was something of a compromise. It is higher than the present dividend yield but lower than the dividend yield available at some times in the past 20 years. Since we cannot defend this estimate on absolute grounds we must measure the effect of different estimates. How much difference does it make in the final valuation.

It is clear that the impact of this estimate is related to the length of the period of estimate. If we were estimating the present value of an anticipated selling price a hundred years in the future, the capitalization factor used in estimating the selling price would make little difference since the present value of money due at the end of such a long period is very small at almost any rate of interest.

We can test the importance of this factor by measuring the effect of a different assumption of yield rate at the end of 20 years. In the preceding illustration a yield rate of 4.25% was assumed. How much would the estimate of present value be reduced if a yield rate of 5.50% were assumed? The results of this computation are shown in *Table IV*.

The impact of this change in anticipated yield rate on total present value is indicated below.

Growth Rate	Valuation on Basis of Expectation of Yield Basis of 4.25%		Reduction	Valuation on Basis of Expectation of Yield Basis of 5.5%
	4%	5		
4%	224.82		\$26.42	198.40
5		260.84	32.01	228.83
6		302.78	38.68	264.10

Table IV

Expected Growth Rate	Resultant Dividend End of 20 Years	Resultant Selling Price (+ .055)	Discount Factor	Present Value of Selling Price 5.5% Yield Expectation	Present Value of Selling Price 4.25% Yield Expectation	Difference
4%	\$13.15	239.09	0.376	89.90	116.32	26.42
5	15.92	289.45	0.376	108.83	140.84	32.01
6	19.24	349.81	0.376	131.53	170.21	38.68

Summarizing then, if we wish to be somewhat more conservative and assume that in 20 years the level of investor expectations concerning duPont will require a 5.50% yield rate, instead of the present 2.6%, then the present price of \$230 can be justified only on the assumption of a growth rate for the 20 years of almost exactly 5%.

The following general observations on this approach to the valuation of growth stocks may be of assistance in understanding the use and limitations of this procedure.

1. If the assumed rate of growth and the discount factor are the same, then the present value of future dividends is simply the sum of such dividends.

2. If the growth rate is assumed to continue indefinitely, and if the assumed rate of growth and the discount factor are the same, the correct valuation is infinity.²

3. If it is assumed that the dividend yield rate will not change, the present valuation cannot be less than the current price at any growth rate, unless the discount factor is higher than the growth rate.

GROWTH STOCK TABLES

A generalized and convenient approach to the valuation of growth stocks has been suggested and developed by John C. Clendenin.³ This involved the construction of a table showing the present value of a stock now paying \$1.00 per share with varying growth assumptions and with varying assumptions concerning the growth period. But in all cases the present value is based on a 100 year period; the dividend is assumed to remain stable from the end of the growth period to the end of the 100 year period. The table was also based upon the assumption that at the end of the 100 year period the stock would have no value. It should be recognized that this latter assumption is not unduly pessimistic since the present values of sums due in 100 years amount to very little at any reasonable rate of interest. Clendenin's observations are shown in *Table V*.

Table V

Approximate Present Values of all Future Dividends on a stock now paying \$1.00 per annum, if the dividend is expected to increase at the indicated compound rate for the indicated period of years and then remain stable until 100 years from today, and if the payments of the first decade are discounted at 4%, those of the second at 5%, those of the third at 6%, and those of the remaining 70 years at 7%.

Growth Period	Annual Growth Rates				
	5%	4%	3%	1%	0%
None	\$17.01	\$17.01	\$17.01	\$17.01	\$17.01
10 years	24.05	23.04	21.37	18.37	17.01
20 years	31.21	27.51	24.27	19.12	17.01
30 years	35.97	30.55	26.08	19.51	17.01
40 years	39.65	32.67	27.22	19.69	17.01
50 years	42.63	34.23	27.99	19.80	17.01

At first glance it might appear that this method would make unnecessary any assumption concerning future

capitalization rates. It should be noted, however, that the author has made no such claim for it. Actually this method does implicitly make quite specific assumptions of capitalization rates every year of the period. Moreover these assumptions seem unduly pessimistic at least in the light of present attitudes. A specific dividend rate can be calculated for every year of the 100 year period. In addition the expected price at the beginning of that year can be calculated as the then present value, at the rates indicated, of the remaining expected payments.

This can be demonstrated by use of the illustration of duPont. Each dollar of duPont dividend sells for \$38.33 (\$230 ÷ \$6). Reference to the Clendenin table indicates that justification of such a price requires the assumption of a 5% growth rate for a period slightly less than 40 years. Alternatively, if a growth rate of 5% for only 20 years be assumed, the correct valuation is indicated as \$187.26 (31.21 × 6).

But our calculation, based upon a 20 year growth rate of 5%, yielded a valuation of \$260.84 when associated with an expected dividend yield rate at the end of 20 years of 4.25%; on the same conditions, except that the estimated dividend yield rate at the end of 20 years is assumed to be 5.5%, the resultant valuation was \$228.83.

The lower valuations derived from the Clendenin table must be a result of assumptions of higher yield rates at the end of the 20 year period which are implicit in the construction of the table. Since the yield rate at the end of 20 years is not specifically indicated in the table it must be computed.

The dividend in the 20th year, of a stock now paying \$1.00, if the growth rate is 5%, will be $(1.05)^{20}$ or \$2.65.

This dividend of \$2.65 is then presumed to be constant for the remaining 80 years. The presumed value of the stock, then, at the end of the 20 year period, according to the table, would be the then present value of the remaining 80 payments. The discount factor for the third decade was 6% and for the remaining 70 years 7%. The valuation would be the present value of a 10 year annuity of this constant dividend at 6%, plus the present value, at 7%, of an annuity of this same dividend for 70 years but deferred 10 years at 6%. This works out at \$40.45. At this price, and with an anticipated dividend of \$2.65, the yield basis would be 6.55%.

It is evident that the Clendenin method does not really avoid the making of estimates of future dividend price relationships, although these are implicit rather than explicit. Moreover it appears that these implicit estimates are unrealistically pessimistic.⁴

It can be readily granted that vigorous growth is most unlikely to continue indefinitely. But it seems most unlikely that such a stock as duPont would sell on such a high yield basis after 20 years of dividend growth at the rate of 5% per annum.

Since it is really impossible to avoid estimates of future dividend yields it seems wise to abandon the

1958

1959



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- Brought refining and marketing volumes into balance with crude oil production.
- Proved important reserves of oil and gas in Libya.
- Produced a 72-year-record volume of crude oil and natural gas liquids.
- Discovered Alaska's first commercial reserves of natural gas.

HIGHLIGHTS OF THE YEAR

FINANCIAL

	1959*	1958
Total Revenues	\$349,472,000	\$274,401,000
Net Income	38,633,000	32,156,000
Net Income per Share	2.76	2.45
Dividends per Share	1.60	1.60
Book Value per Share	29.22	27.97
Capital Expenditures	52,367,000	39,241,000
Exploration Expense	31,920,000	27,349,000
Payrolls	55,970,000	44,707,000

OPERATING

Net Crude Oil and Natural Gas Liquids Produced—Barrels per Day	109,298	100,681
Natural Gas Produced and Sold—Thousand Cubic Feet per Day	301,305	288,496
Crude Oil Transported—Million Barrel-Miles	21,505	18,825
Refined Products Transported—Million Barrel-Miles	1,331	1,360
Crude Oil Refined—Barrels per Day	100,268	41,425
Refined Products Sold—Barrels per Day	94,191	42,668

*1959 figures reflect a consolidation of The Ohio Oil Company and Aurora Gasoline Company on the basis of a pooling of interests for the full year. Figures for 1958 include no amounts for Aurora.

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What's ahead for GENERAL ELECTRIC in the 60's

As the 1960's unfold, General Electric will make a vigorous new bid to realize a new era of growth through imaginative expansion of service to customers. Record 1959 results form the base upon which the Company is building for the decade ahead:

- **Sales** climbed to a record exceeding \$4.3 billion.
- **Earnings** rose to a new high of \$3.19 per share.
- **A new high of 404,431 share owners** of record received dividends — the 61st consecutive year of General Electric dividends.
- **Employee compensation** at General Electric set new records both for the total amount (\$1,785 million) and for the average per employee (\$7,226).

1959 developments indicate many of the areas of growth potential in which the Company is focusing attention. These include:

- **Advanced industrial systems** being developed by General Electric demonstrate the Company's "unique capability" for combining experience in the electrification of industry with new skills in new electronics technologies.
- **Flexible automation:** New machine-tool controls developed by General Electric enable small-lot manufacturers to automate.
- **International trade** is receiving fresh emphasis from General Electric through formation of the new International Group to consolidate export trade and foreign manufacturing operations.

Other examples are at right. You'll find details in General Electric's 1959 Annual Report, now available.



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attempt to make projections over such a long period as 100 years. Nothing is accomplished and a good deal is lost in using such a long period and then compensating for the uncertainty of long distant returns by applying very high rates of discount to such returns.

An Alternative Growth Basis Indicated

A more useful and more defensible basis for construction of growth stock tables would seem to be to prepare separate tables for various shorter assumed periods of growth, and to allow in each table for a variety of assumptions concerning the dividend yield at the end of the period. It is possible to include only two variables in each table; consequently, it is necessary to make separate tables for different rates of discount.

Accordingly, *Tables VI, VII & VIII* were constructed by computing the present value of all future returns from a stock now paying \$1.00 per annum. By future returns is meant the series of increasing dividends and the future sale price computed on the basis of various assumptions concerning the dividend yield expected at the end of the period. It should be noted that all tables are based on a 5% discount factor. This discount factor is defensible on something like an absolute basis; i.e., close to the present long term bond rate. It would, of course, be relatively simple to construct another set of tables based upon different discount factors.

Table VI

(10 Years, 5% Discount Factor)

Present Values, at 5%, of All Future Returns on a stock now paying \$1.00 per annum, if the dividend is expected to increase at the indicated compound rate for 10 years, and the stock then sold on the basis of the indicated dividend yields based on the dividend of the 10th year.

Growth Rate	Expected Dividend Yield, End of 10 Years					
	6%	5%	4½%	4%	3½%	3%
None	\$17.95	\$20.00	\$21.38	\$23.07	\$25.26	\$28.18
2%	20.94	23.43	25.09	27.14	29.84	33.40
3	22.74	25.49	27.32	29.61	32.55	36.48
4	24.62	27.65	29.66	32.19	35.43	39.76
5	26.65	30.00	32.21	34.99	38.55	43.27
6	28.84	32.51	34.95	38.00	41.92	47.16
7	31.21	35.24	37.92	41.27	45.59	51.34
8	33.77	38.19	41.14	44.82	49.55	55.87

Table VII

(15 Years, 5% Discount Factor)

Present Values, at 5%, of All Future Returns on a stock now paying \$1.00 per annum, if the dividend is expected to increase at the indicated compound rate for 15 years, and the stock then sold on the basis of the indicated dividend yields based on the dividend of the 15th year.

Growth Rate	Expected Dividend Yield, End of 15 Years					
	6%	5%	4½%	4%	3½%	3%
None	\$18.40	\$20.00	\$20.96	\$22.41	\$24.12	\$26.41
2%	22.69	24.85	26.29	28.08	30.39	33.47
3	25.37	27.87	29.53	31.61	34.28	37.85
4	28.32	31.21	33.13	35.54	38.63	42.75
5	31.67	35.00	37.22	40.00	43.61	48.33
6	35.40	39.23	41.79	44.99	49.10	54.60
7	39.55	43.98	46.92	50.61	55.43	61.67
8	44.34	49.42	53.82	57.05	62.49	69.75

Table VIII

(20 Years, 5% Discount Factor)

Present Values, at 5%, of All Future Returns on a stock now paying \$1.00 per annum, if the dividend is expected to increase at the indicated compound rate for 20 years, and the stock then sold on the basis of the indicated dividend yield based on the dividend of the 20th year.

Growth Rate	Expected Dividend Yield, End of 20 Years					
	6%	5%	4½%	4%	3½%	3%
None	\$18.74	\$20.00	\$20.75	\$21.88	\$23.17	\$25.01
2%	24.20	26.06	27.30	28.86	30.86	33.52
3	27.76	30.03	31.54	33.43	34.86	39.10
4	31.85	34.60	36.47	38.73	41.68	45.61
5	36.66	39.99	42.08	44.99	48.56	53.32
6	42.41	46.27	48.95	52.31	56.61	62.38
7	48.74	53.60	56.84	60.89	66.08	72.96
8	56.47	62.32	66.19	71.10	77.31	85.72

LIMITATIONS

It must be emphasized that the past is not an entirely reliable guide to future growth. Individual companies, as well as whole industries, grow rapidly for a time and then the rate of growth slows down and sometimes stops. Indeed in some instances a company, or industry, may decline or even disappear following a period of growth. There may be something of a typical life cycle of industries.⁵ Past growth rate at best is only one of the clues pointing to the future.

Then it must be remembered that there are two risks associated with the purchase of so-called growth stocks. First, the expectation of future growth in returns may not be realized. Second, even if the estimate of growth turns out to be correct, the price paid may represent a full capitalization of this anticipated growth. Price is the most important ingredient in investment risk.⁶ If future growth is fully capitalized in the present price, the investor at present price will not gain differentially, but will earn only a normal return on investment. This is another way of saying that the values shown in the last three tables should be taken to represent maximum prices that can be paid if a 5% return is to be realized. It should be observed that these tables permit projections of growth rates and estimates of future dividend yields that are probably far beyond reasonable expectations.

Moreover, it should be pointed out that these tables are based upon dividends rather than on earnings. The payout ratio is therefore an important consideration. An expectation of increased returns in the way of dividends may be based on a belief that earnings will increase or that the proportion of earnings paid out in dividends will expand.

Valuations that are based upon expectations of liquidation, or partial liquidation, are also outside the scope of the tables shown here. Especially in the case of natural resource companies, or holding companies, the potential value in dissolution, or partial liquidation, may represent an entirely rational approach to valuation.

The tables presented here have limited value. They do permit the Financial Analyst to estimate valuation

on the basis of assumed rates of growth and future capitalization rates. Probably more important they enable an investor or Analyst to determine the growth assumptions that are implicit in a given relationship between price and dividend.

Footnotes

1. The best exposition of this philosophy is to be found in John B. Williams, *Theory of Investment Value*, Harvard University Press, Cambridge, Massachusetts, 1938.

2. This somewhat strange result is mathematically sound. If the current dividend is \$1, then the present value of each future dividend, no matter how remote in time, is \$1; and infinity times 1 is infinity. Nevertheless it is confusing and perplexing. Why should even an investor with infinite life give up an infinite sum in exchange for a series of payments which can never equal infinity. Even if somewhat confusing, it is, nevertheless a vivid demonstration of the futility of very long term trend projection. David Durand in an article in *The Journal of Finance* on September 1957, *Growth Stocks and the Petersburg Paradox* has called attention to the analogy between value calculations of growth stocks based on long term trend projection and the famous Petersburg Paradox which has confused and perplexed mathematicians for more than 200 years.

3. John C. Clendenin, *Theory and Technique of Growth Stock Valuation*, Occasional Paper No. 1, Bureau of Business and Economic Research, University of California, Los Angeles, 1957.

4. This implicit dividend yield increases with time and toward the end of the assumed 100-year period would approach 100%.

5. The best discussion of the life cycle of industries is to be found in *The Ebb and Flow of Investment Values*, by Mead and Grodinsky, D. Appleton & Company, 1939.

6. The value approach to investment problems is well presented in *The Intelligent Investor* by Benjamin Graham, Second Revised Edition, Harper & Brothers, 1959.

"I CERTAINLY CLAIM no foolproof crystal ball, but neither do I apologize for forecasting. Frankly, every responsible business executive is a forecaster simply because no decision of any importance can be made without having some forecast in mind."

—Walter E. Hoadley, Jr., treasurer, Armstrong Cork Co.

'Sales and Consumer Finance Companies' Lecture Series Available

The Education Committee of *The New York Society of Security Analysts* has announced that, at its request, the Bank of New York and the Pacific Finance Corporation have agreed to publish, in book form, the four-session basic orientation course on "Sales and Consumer Finance Companies" that was presented jointly by the two institutions last February at the New York State Chamber of Commerce.

The hard cover book, numbering more than 100 pages, contains numerous full-color charts and graphs adapted from visual materials that were especially prepared for the N.Y.S.S.A. sponsored lectures. A limited supply of the books will be available without charge upon request to Readers Service No. 2, *The Financial Analysts Journal*, 82 Beaver Street, New York 5, N. Y.

According to Raymond W. Hammell, chairman of the New York Society's Education Committee, the course was designed generally to give the Security Analyst a clearer insight into the complicated multi-billion dollar consumer credit industry, and specifically to aid him in understanding the operation of sales and consumer finance companies and to interpret their significance.

Top officers of both cooperating financial institutions presented the lectures. From the Bank of New York were Albert C. Simmonds, Jr., chairman of the board and chief executive officer; Hugh R. Chace, executive vice president; and Howard J. Poduska, vice president in charge of finance company lending operations.

From Pacific Finance were Maxwell C. King, president; M. L. Goeglein, senior vice president-operations; Basil C. Reynolds, senior vice president-finance; Elliott Taylor, senior vice president-insurance; W. F. Robinson, general counsel; Frank D. Terry, vice president and manager of commercial financing and corporate development; and LeRoy A. Weller, vice president and manager of long-range planning and control.

The course covered 12 essential aspects of the general subject. These were historical background of the banking system; historical background of sales and consumer finance companies; legal aspects; capital structure; methods of operation; credit evaluation practices of banks and other suppliers of funds; insurance; profit factors affecting financing company operations; competitive trends; credit controls; economic factors; and, market potential.

The decision to ask the two cooperating financial institutions to publish the lectures in book form, Mr. Hammell said, came in part from numerous requests received from among the nearly 250 members who enrolled for the course. Also, he noted, the favorable response to the previous offer of "The Chemical Industry," which summarized the lectures presented by Allied Chemical Corporation, indicated that many members desire a permanent record of the New York Society's industry seminars.

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Common dividends have been increased 12 times since quarterly cash disbursements started in 1935, and no payment has ever been omitted or reduced. The dividends span a period that included all types of business climate—deep depression, recovery, war, uneasy peace and prosperity.

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Secretary

January 29, 1960

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A NEW NAME — Diamond National Corporation was created by the merger in September of Diamond Gardner Corporation and The United States Printing & Lithograph Company. The new name shows the national character and diversification of the company's line of products and services. In addition to its famous Diamond matches and woodenware items, Diamond National makes a variety of molded pulp products and produces paperboard cartons and boxes of all types. The company manufactures lumber and sells building supplies through 83 retail yards and stores on both coasts. To these in 1959 were added the extensive color printing facilities of U.S.P. & L., together with that company's broad line of cartons, labels, and advertising materials.



A NEW CORPORATE SYMBOL — evolved from the traditional diamond design made famous by company use for more than three-quarters of a century. Modern and streamlined, it shows at a glance the dynamic nature of Diamond today, while continuing to symbolize the company's 500,000 acres of timberland through the stylized tree.



A NEW SALES RECORD; HIGHER EARNINGS — Combined sales for Diamond National, its subsidiaries and affiliates reached a new peak of almost \$250 million, up 12 per cent from \$222.9 million in 1958. Not including unconsolidated subsidiaries and affiliates, net income amounted to \$10,286,000 or \$2.15 a common share, an increase of 9 per cent over 1958's \$9,428,000 or \$1.98 a common share.



NEW PLANTS AND EQUIPMENT — Two completely new plants went into operation. New and improved machinery and equipment were installed in practically all plants. Much of it was designed and developed by Diamond engineer and research specialists.



NEW OPERATING AND MARKETING POLICIES — Substantial progress was made during the year in streamlining management procedures, tightening controls and developing internal communications. The aggressive approach to modern-day merchandising and marketing for which U.S.P. & L. is noted now underlies all Diamond's current plans and operations. This approach is illustrated in the 1959 ANNUAL REPORT now available on request.



THE NEW YEAR — Operations in 1960 indicate that the new year will be a good one for Diamond National, with substantial gains in sales and profits anticipated.

FINANCIAL HIGHLIGHTS

	1959	1958
NET SALES	\$228,766,000	\$204,017,000
NET INCOME	10,286,000	9,428,000
PER SHARE OF COMMON STOCK		
Net income after preferred dividends.....	\$2.15	\$1.98
Dividends paid	1.20	1.65
PER SHARE OF COMMON STOCK		
Working capital	\$13.90	\$13.83
All other assets	21.96	20.51
Total	35.86	34.34
Less — Debentures and notes payable and preferred stock	10.44	9.89
Book value	\$25.42	\$24.45

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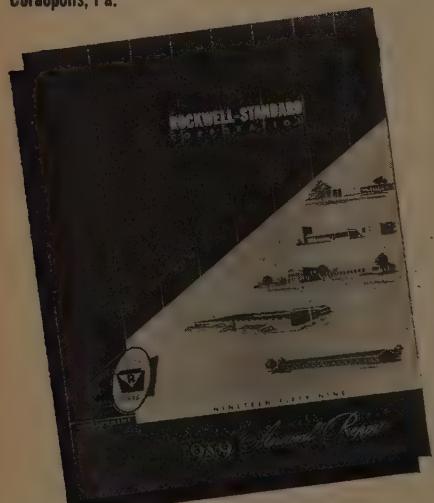
BEST EARNINGS IN HISTORY

HIGHEST PEACETIME SALES

1959—A Great 50th Year

	1959	1958
Net Sales	\$284,078,179	204,531,048
Net Income	\$ 19,138,978	9,120,175
Per Share	\$ 3.61	1.75
Percentage on Sales	6.7%	4.4%
on Shareholders' Equity	16.18%	7.84%
Cash Dividends per share	\$ 2.00	2.00
Working Capital	\$ 60,443,255	56,489,829
Shareholders' Equity	\$129,902,322	115,347,536
Shareholders of Record	30,099	29,102
Number of Outstanding Shares	5,383,157	5,223,757
Short or Long-Term Debt	NONE	NONE

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In the 22 domestic plant locations of the Company and its wholly owned subsidiaries, Rockwell-Standard manufactures a wide variety of products including: Airplanes • Axles • Brakes • Bumpers • Special Drives • Filters • forgings • Floor Grating • Lighting Standards • Automotive Seating • Springs of all types • Stamping • Transmissions • Universal Joints.

Its foreign business, conducted on 4 continents, is rapidly expanding and is becoming an increasingly significant part of sales and earnings.

This is Rockwell-Standard in brief. The 1959 Annual Report contains many more facts of interest. Would you like a copy?

ROCKWELL-STANDARD
CORPORATION



GENERAL OFFICES: CORAOPOLIS, PENNSYLVANIA

Stock Values and Stock Prices

(Continued from page 12)

istics must govern the size of the multiplier that will lift earnings to the level of value. And for reasons detailed in the writer's previous papers, earnings, i.e., the capitalization base itself, can be portrayed only by reliably computed trends, not by flashlight snapshots of their fleeting current figures.

Besides, current earnings are no more practical as a base for capitalizing stocks than they are meaningful theoretically. Between them and average stock prices there is no significant correlation.⁵ Flitting across the screen of daily events, they may trigger impressionable or uninformed people into emotional action. But representative earning power and its rate of growth alone possess theoretical and practical usefulness.

Changes in growth rates of projected trend lines of future earnings, and the number of years during which each rate will prevail, will determine the capitalizers. The level of the trend line at the point from which future projections are made will be the point of departure of the computations. Finally, the growth rate of the trend line connecting this point with the historical past exerts an influence also because of its effect on present payout.

Valuation of Common Stocks described all this in detail. It is briefly repeated here to emphasize that no element of price enters into appraisals of common stocks by this method. Value is the standard we seek by which to measure whether price is high, low, or in line with the standard. When we use price-earnings ratios we are prisoners of price. Even after such "multipliers" have been refined by being filtered through multiple comparative experience, they are still derivatives of price which they are supposed to measure. A ratio remains a ratio even after having been adjusted. We are spinning inside a looping hula hoop. And when we attach ratios to fluctuating current earnings, we perform our circling act on quicksand.

Importance of Adequate Concepts

The story of price-earnings ratios is not unlike that of phlogiston. According to chemistry textbooks, three centuries ago a German scientist "explained" burning by a chemical fluid he dubbed phlogiston, "the thing that makes things burn". Everything flammable, he claimed, contained some phlogiston. When it burned, the phlogiston escaped, causing crackling, sparks, flames and smoke.

While phlogiston presumably accounted for some of the aspects of burning, it led to many difficulties and contradictions until Priestley discovered oxygen. Not only could burning be then understood, but Lavoisier's experiments soon laid the foundations of modern chemistry.

False as were the ideas about what happened in burning, ores were melted into metals and fashioned into tools, ornaments, and weapons for thousands of years before Lavoisier was born. And many years elapsed before his teachings were accepted even by his

fellow chemists. Men of affairs — if they heard about him at all—probably considered him a stodgy egghead, an insufferable bore. In their practical work they could get along quite well without dull theorizing. Yet clearer concepts led to technological advances that would have been unimaginable without them.

Our beloved teacher, Frank W. Taussig, once wrote: "Economists are often twitted with being theoretical and out of touch with the facts of industry. Much more unpractical is the attitude of the average business man, who is familiar with but one small corner of the industrial world, contents himself with the most superficial commonplaces, and knows so little of the essential problems of economics that he is hardly aware even of their existence."⁶

Financial Analysts are aware of the importance of basic research for industrial progress. Investors may find a basic valuation approach equally vital.

Pioneers of Valuation Studies

In his essay, "On Liberty", John Stuart Mill makes a strong plea to the individual to assert himself. The majority imposes its opinions so completely, and so harshly censors independent thinking, that belief tends to become stagnant. We must, therefore, be especially grateful to those who led the efforts to penetrate more deeply into the realities of our own field of endeavor.

Valuation of Common Stocks gives credit to the pioneers who opened for us new avenues for methods of stock appraisal. To the names previously mentioned, we wish to add another. A. Wilfred May, Executive Editor of *The Commercial and Financial Chronicle*, and faculty member of the New School, has striven for many years to convince the financial community that investment policy must be built around a concept of value. He has favored specifically gearing the purchase price to the probability of recovering the principal, together with its investment return and a profit increment within a foreseeable future. Mr. May thinks that an advantageous buying price for stocks of companies with stable earnings might be estimated by capitalizing the expected future dividends at a rate embodying the rental value of the capital, and a proportion of a reserve sufficient to amortize the investment during a period commensurate with the risk assumed. Financial Analysts who have struggled with the problem of valuation are indebted to Mr. May's contribution and to his tireless campaign for sound methods of appraising common stocks.

THE FACTOR OF TIME

The most important dimension of earnings lies along the axis of time. Unless viewed in the perspective of their past and projected future, current earnings have little economic meaning. Time is, in fact, a basic dimension of finance. The concept and practice of the interest rate—the capital's share in the distribution of wealth created by production—express the relation between present and future payments.

To quote F. R. Macaulay: "Investments as a class constitute one family. They each originate in an ex-

change of present money for an expectation of future money. If it were not for such an expectation they would have no exchange value. And they lose that value as the expectation dies out. The demand that comes from the possibility of buying them and later selling at a profit may exist for a time in a sort of economic vacuum, but it is essentially a derived demand and, in the absence of any (warranted or unwarranted) expectation of future returns, it sooner or later disappears.

"Because the good that the common stock offers to its purchaser is an expectation of future money payments, the relation of its present-money price to its future-money payments is as unmistakably an interest phenomenon as is the relation of the present-money price of a bond to its future-money payments."⁷

At first glance, the value of a common stock may not seem to be related to the future payments to be received from it. Numerous stocks paying small or no dividends often command high prices. However, though the buyer, with an eye to profit alone, may be indifferent to or not even aware of the fact, potential investors' expectations of future payments are the active force supporting the price of his stock.

A comic strip published by a New York evening paper depicted, in the spring of 1946 at the height of the black market, the woeful experience of a lady who committed the blunder of opening a package she had purchased. The food in it was spoiled. Indignantly she rushed back to the store. "My dear lady," exclaimed the clerk, "you opened the package? Good heavens! That's not for eating. It's for BUYING AND SELLING."

So it is too with stocks. Many purchase them for selling, never looking inside. But if the market declines before they succeed in disposing of the package, the value of the contents suddenly acquires a new and decisive meaning.

The only financial return from a common stock comes in the form of a payment, or of a series of payments to the holder. Dividends are the foundation on which common stock values are erected. If expectations of future dividends fail to be realized, the stock becomes worthless.

Earnings are the Dividends' Fund

Discovering the present worth of future dividends is computing their capital worth. And this is equivalent to finding the value of the stock producing these dividends.

This method of capitalizing income applies to dividend payments. A bridge must therefore be built from dividends to earnings for determining the proper multiplier applicable to the latter if they are to be the capitalization base. In *Valuation of Common Stocks*, (*The Analysts Journal*, February, 1959), we treated this problem in detail and would be glad to send a reprint upon request. Under *Finding Normal Dividends* (Reprint, pp. 12 and 13), we described how we correlated vast series of data pertaining to trend lines of dividends

and earnings in order to find norms of relations between them under varying rates of earnings growth. To make this presentation more concrete, the growth figures are given in the Appendix.⁸ They reveal an extraordinary galaxy of variations and combinations in the rates of change of the shorter trend lines of the two factors, which blend into the uniformity of identical secular rates.

Because we can compute theoretical dividends by means of a generalized expression of relations between earnings and dividends, we can find present worth directly from earnings. We can compute capitalized values of stocks independently from actual payouts, even when no dividends are paid. All stocks become comparable on the same basis and in terms of one another. We have an organized technique for applying the method of present worth to earnings. And the resulting multipliers are no longer soft and uncertain but have the strength of structural steel.

This is not the only approach to capital worth. *Valuation of Common Stocks* summarizes several others. Yet the road to value via earnings is sound as long as one steers a straight course. As Dr. Julian G. Buckley correctly stated in the March-April 1960 issue of *The Financial Analysts Journal*, the basic factor when capitalizing earnings is "*the growth rate of net income*". (Dr. Buckley's italics).

The same March-April issue of our *Journal* also contained an interesting article on *The Theory of "Games" in Stock Selection*, by Irving Hale. Fearlessly, he writes: "Several new mathematical theories have proved to be useful tools when used to supplement statistics in business and finance. Generally, statistics are employed to construct theories from empirical data, while the new techniques, broadly classified under the



"B. C."—Before Computers

heading 'operations research', act in the opposite direction, proceeding from the abstract towards the practical". These are the methods to which we alluded above in discussing the interpretation of price patterns.

Our methods of valuation need no recourse to higher mathematics. They do not call for much knowledge beyond compound interest and geometric progression. But while recognizing our own limitations in the command of mathematical tools, together with an old-fashioned reluctance to use them, we, nevertheless, welcome the growing penetration of mathematics into our field. Repeating the simile of a preceding article, we are not inclined to demand that Financial Analysts avoid techniques or computers beyond those nature provides in our fingers and toes.

SOME NEW FINDINGS

In *Valuation of Common Stocks*, under *Splicing the Indexes*, we suggested that it might be desirable to recompute the data in terms of the new Standard & Poor's "500" Indexes, whose earnings figures were not yet available at the inception of our study. Such a recomputation has since been made and we now submit the results.

Annual Rates of Growth, 1871-1955

	Prices	Earnings	Dividends
Old Indexes	1.99%	2.13%	2.12%
St. & P.'s "500"	2.20	2.40	2.36

The 1871-1955 story is the same as told by both sets of indexes as far as the relations between the three factors are concerned. But their average annual rate of growth is approximately 0.3% higher when measured by the new "500" Indexes.

The addition of 1956-59 to this long period lifts the annual rates of the "500" Indexes by approximately another 0.2% as follows:

Annual Rates of Growth, 1871-1959

Standard & Poor's "500"

Prices	Earnings	Dividends
2.44%	2.58%	2.51%

This difference is probably, at least in part, cyclical. The addition of the last four years to the Earnings series of the old index also raises its average rate of growth from 2.13% to 2.28%. Nevertheless, replacing the original data used in *Valuation of Common Stocks*, by the "500" Indexes, does produce a slight upward slant. And since we wish to take advantage of the most modern tools, we adjusted our representative average long term rate of earnings and dividends growth from 2% to 2½% in all our appraisals.

This change does not affect the basic relations between earnings and dividends, since their respective growth rates have received an identical adjustment. The average yield, as measured by the arithmetic totals of all actual dividends and prices for the entire period 1871-1959 in terms of new "500" Indexes, is 4.9% as against 4.945% for 1871-1955 as measured by the old

indexes. Both results may still be rounded out to 5%, which stands as the representative historical current return from common stocks.

However, by lifting the growth rates of the trend lines of earnings and dividends to 2½%, while maintaining the 5% current return, we have also increased, in round figures, the effective total return from dividends to 7½%. And this is the figure we must henceforth accordingly use as our discount rate for computing present worth.

For the benefit of readers who favor precision with figures, as we do, we may add that if the indefinite growth rate is assumed to be 2.5%, effective yield would be 7.625%, which could be rounded to 7.5% (compared with 2% and 7% from the old data).

An infinite projection at 2.5%, discounted at 7.5%, would have the same effect on value in terms of present worth as an infinite projection of 2%, discounted at 7%, because the changes in the two rates balance. However, projection at definite estimated rates in the near future would be reflected by slightly lower values because of the higher discount rate. The difference would not be large because the number of years for which projections could reasonably be undertaken would be few compared with the indefinite projection of the remaining years at the overall "rate of ignorance." Nevertheless, our new universal rates, 2½% for earnings growth and 7½% for the discount rate, give somewhat lower appraisals.

Old Names, and New

Another innovation arising from further thinking on this difficult subject, for one more year, has to do with terminology. Under *The Role of Market Value* (*Valuation of Common Stocks*, Reprint, p. 22), we remarked that our terms were convenient short labels, not final definitions. In preceding articles we called the value of a stock appraised by the method of present worth *Theoretical Value* and *Intrinsic Value* indiscriminately. We also interchanged freely *Market Value*, *Normal Price* and *Price Orbit* to denote the habitual representative average pricing of a stock, or a stock average, by the market itself.

To avoid any possible confusion between the two concepts, we intend to reserve for the latter exclusively the term *Price Orbit*. Our original term, introduced some seven years ago, has the advantage of completely avoiding the word "value" which tends to obscure the difference between the two concepts.

"Value" will refer solely to appraisals based on present worth; and such appraisals will always be described as the *Investment Value* of a stock or of an average. "Theoretical Value" makes the concept sound more abstract than it is; and "intrinsic", while much liked in Wall Street, gives it the flavor of a "true" value, which creates an exceedingly dangerous mental picture. *Practical Measure of Value* (*Valuation of Common Stocks*, Reprint, p. 6) illustrates, by a parable ranging from blondes to Lucifer, how it can make us tumble into Satan's trap. We entertain no idle dreams

of reaching unattainable and futile objective true values. Our more modest purpose is to line up practical appraisal schedules as a means of comparing the investment values of various stocks.

Back to Good Old DJIA

We hope that this clarification of terminology will help our readers, as well as sharpen our own thinking. Earlier we were inclined to share the more general view that the *Price Orbit*, i.e., the historical record of the stock's or average's habitual central market price, which gradually adjusts itself to its long-term trend, was a sufficient expression of its value. But in *The Outlook for the Stock Market (Commercial and Financial Chronicle*, Dec. 8, 1955), we realized the need for another concept that would free the idea of value from any admixture of price.

We were fortunate then in forecasting the fluctuations of the next 18 months rather accurately. More important, we sensed that investors would reappraise the level of representative postwar corporate earning power. We suggested that the market would probably go through another cyclical test before investors would believe that the normal level of corporate earnings had shifted to higher ground and that capitalizers other than those applicable to historical average levels were called for. The new plateau had become more evident by the time we appraised the Dow-Jones Industrial Average in an address reprinted in *The Chronicle* of October 30, 1958. But already in 1955 we had anticipated both the necessity for a better concept of value and generally higher prices in the market itself.

To this writer's knowledge, his 1958 address was the first attempt in financial literature to measure the investment value of a stock market average in capitalizing the earning power by the method of present worth. Representative opinion in Wall Street held that the DJIA was grossly overpriced. It was fluctuating below 550 and financial sirens were screaming emergency alarms. In reaching our optimistic conclusion we used the simplest of various possible valuation bases—the

average's long-term trend line. The succession of secular historical trend points provided the lowest of all possible series of average earnings points, thereby avoiding the danger of overvaluation.

However, this method had several drawbacks. Though compensated by a higher capitalizer, a long term trend line cannot do full justice to recent earning power. Moreover, doubts are justified about the validity of the 4% growth rate which we applied to the long term trend line of DJIA earnings.

It may be argued, as we have done ourselves, that DJIA is not only composed of the mightiest industrial giants, but that others can be substituted for them when they no longer measure up to this Average's *deluxe* specifications. Five stocks were replaced in 1959 alone. Far from being an "all stock" index, the DJIA is like a marble pool bordered with tiles of solid gold and constantly replenished with streaming blue water. However, generalizations, especially when waxing lyrical, should be just as subject to audit as high bracket income tax returns. Closer statistical examination reveals that in more recent years the DJIA annual rates of earnings growth were frequently lower than those of the very broad Standard & Poor's "500" index.

Annual Rates of Earnings Growth

	DJIA	"500"
1915-1959	4.44	3.26
1929-1959	10.36	7.73
1937-1959	7.92	8.32
1946-1958	5.75	7.20
1954-1959	1.47	2.06

An annual rate of earnings growth in excess of 4%—revealed when the DJIA is taken back to 1915—is apparently due to its makeup, not to superiority of performance.

Before 1929 the DJIA probably did not contain enough stocks to be reliable. From 1885 through 1896 the index was composed mostly of railroads. Starting with June 1896, it consisted of 12 industrial stocks; and from 1914 to 1928 it was composed of 20 industrials. Not until October 1928 was the index of 30 equities inaugurated.

Moreover, unlike Standard & Poor's, Dow-Jones takes deficits into account. Negative figures are used instead of substituting zero for them. The DJIA earnings troughs are accordingly much lower in the depression years 1921 and 1932 than those of the "500".

This difference in the construction of the two indexes is intensified by the unavailability of earnings data for DJIA before 1915. Even some privately computed figures do not extend into the past beyond the turn of the century and apply to dividends only. Furthermore, as noted above, the Dow index was small in the early days.

Our computations of the growth rate of DJIA's long term earnings trend line were anchored in 1915, i.e., only a short time before the depressions of 1921 and 1932. The combination of "lower lows", with their location near the inception of the trend line, acted much



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	<u>1959</u>	<u>1958</u>	<u>1957</u>	<u>1956</u>
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Income (before taxes)	\$ 55,949,000	\$ 30,803,000	\$ 15,188,000	\$ 7,129,000
Net Income (after taxes)	\$ 26,859,000	\$ 13,803,000	\$ 6,886,000	\$ 3,364,000
Total Assets	\$ 353,966,000	\$ 212,853,000	\$ 110,593,000	\$ 37,238,000
Working Capital	\$ 87,481,000	\$ 55,000,000	\$ 29,664,000	\$ 17,052,000
Shareholders' Equity	\$ 100,877,000	\$ 57,171,000	\$ 34,768,000	\$ 26,488,000
No. of Shareholders	18,258	7,050	3,938	3,003

Dividend Record—Common:

Cash (Cash dividends have been paid annually since 1937)	\$ 3,708,000	\$ 1,694,000	\$ 725,000	\$ 499,000
Stock	—	—	5%	5%
Stock Splits	3 for 1	4 for 3	2 for 1	—

All figures on a consolidated basis

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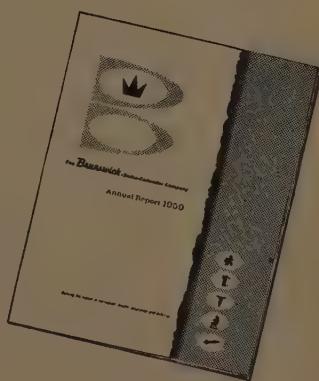
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as would a heavy weight placed on the sawed-off short end of a seesaw, tipping it off balance.

Appraisal of DJIA

We abandon, without regret, the 4% growth rate for DJIA basic earnings trend. We used it because the relative shortness of the trend line itself (going back only to World War I) seemed to reduce the obvious objections to appraising present and projected future values from secular measures rooted in the distant past. And we liked it because it simplified our task. Yet an identical technique for all appraisals without exception is undoubtedly sounder.

If we should plot the DJIA earnings since 1929, when the complete list of 30 stocks came of age, superimposing it on the "500" index by adjusting the respective scales, we would see the two indexes moving closely together. This takes a lot of wind out of the frequent criticisms that the DJIA is not sufficiently representative to be an index of the general market.

To project future DJIA earnings, we were fortunate in securing the estimates of several well-known experts. Some expressed their projections in other indexes. To make them all comparable, they were transposed into the DJIA.

The specialists used various approaches, including estimates of the Gross National Product and its normal relations to corporate profits in periods of expanding and contracting business, as well as representative proportions of earnings per DJIA index share to total corporation earnings. Some took into account returns on the book value of an index share and the probable growth rates of undistributed earnings. Others emphasized margins of profit, their probable relation to GNP during the entire period envisaged, and their probable time-leads with respect to earnings.

One of these friendly experts, whose authority and experience are second to none, made perhaps the most painstaking projection of all. He separately considered such factors as civilian and defense production, and worked with statistically-grounded assumptions as to population growth, productivity rates, wage rates, and manufactured goods prices. He also estimated for each year, on the basis of past studies of a large sample of industrial companies, the most important items of cost as well as direct production labor. He projected depreciation by special methods consistent with assumed growth of production and prices.

Interestingly enough, he alone, of all the economists consulted, foresaw a deep recession in the early 1960's, but also a sharp upturn from the projected 1964 trough to "catch up" with the GNP trend line. A dotted curve on *Figure II* features his individual views. Beginning with 1963, it is traced against the average expression of the summarized expert opinion, including his own.

This writer did not solicit projections beyond 1970. In fact, most of the contributing economists did not estimate actual earnings beyond 1961. After that point, they projected trend lines or rates of growth. All designated 1960 as a cyclical peak of corporate

earnings and indicated lower earnings for 1961, marking the latter as the first year of a cyclical recession. With the single exception mentioned, they projected the next cyclical earnings trough as coming in 1962.

Despite the differences in their approaches and variations in their techniques, the projections are not too dissimilar. Between them, they form a good cross section of authoritative opinion representing leading banks, statistical services, as well as internationally known investment advisory and brokerage firms. Most of the trend lines fitted into each individual projection cross each other about 1965 or 1966; and they average out at an annual rate of earnings growth at close to 5% for 1960-70.

For the purpose of appraisal, the majority and minority opinions produce identical results because the much more widely fluctuating earnings projected by the latter are also adequately represented by the same 1960-70 trend line.

Projecting beyond 1970 an earnings trend line rising indefinitely at an annual rate of 2½%—our accepted rate of ignorance—the 1960 Investment Value for the DJIA works out at 570.

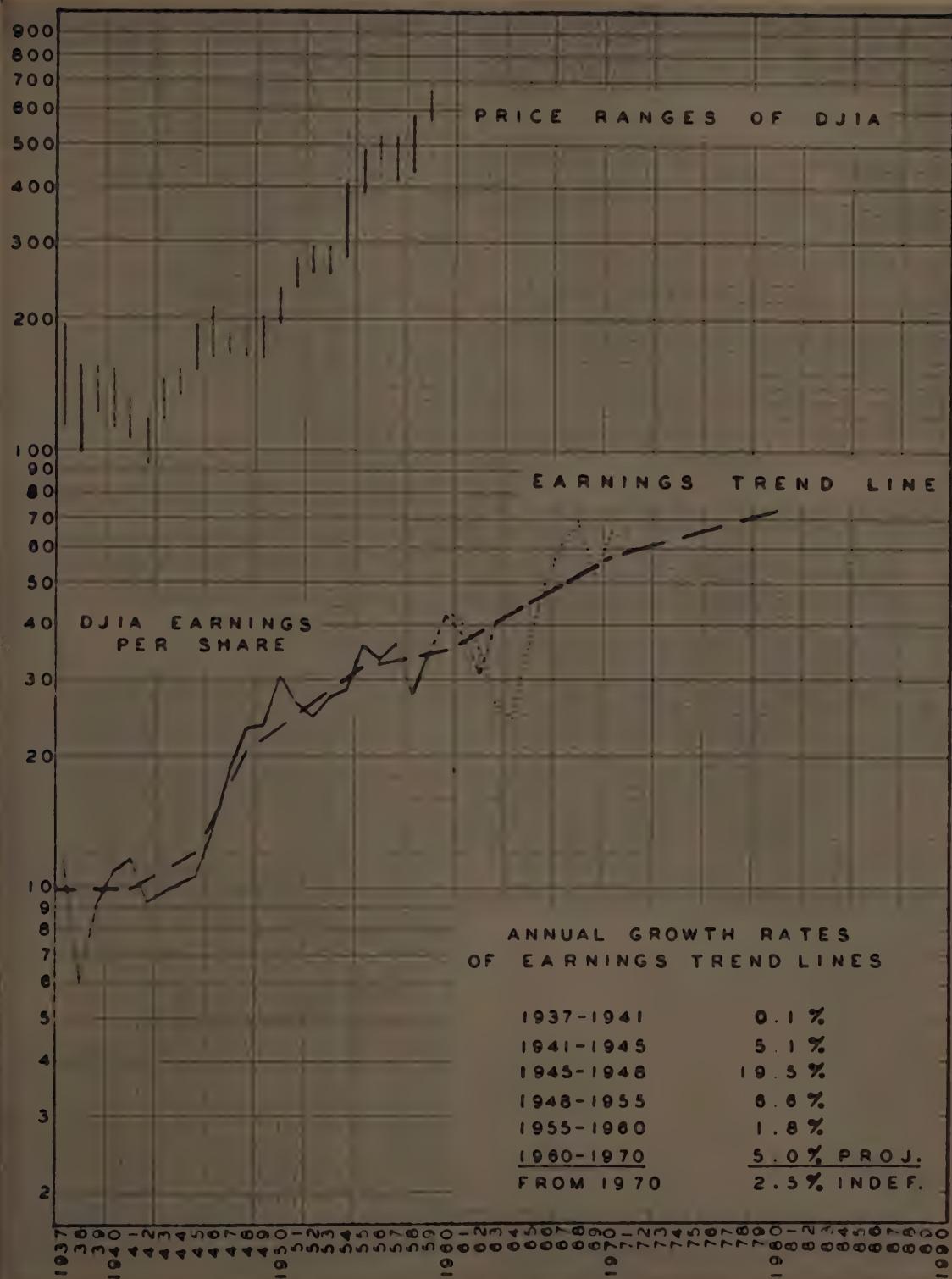
Valuation Bases

In the light of the DJIA rates of per share earnings growth, tabulated on *Figure II*, and of a similar compilation for various other periods in the section comparing the DJIA with the "500" Index, a projected growth rate of 5% for 1960-70 can hardly be considered unduly high. Yet *Figure II* produces an uneasy feeling. Once again we are facing the same situation as we did a year ago in our study of General Motors (*The Analysts Journal*, May, 1959). This time, however, we are dealing with the general market, not with a single stock.

The visual impression is strong that the projected trend lines of earnings are too high, suggesting that an appraisal based on them must necessarily cause drastic overvaluation.

We know of course that a secular trend line of earnings beginning in 1871 could not be a base for computing present investment value. It is merely an average of countless other trends that have characterized different periods of varying durations. It courses over almost a century. During this long period earnings were alternately under the influence of all conceivable conditions affecting national life—foreign wars and domestic strife, staggering depressions and ballooning inflations as well as peaceful prosperity and moderate cyclical fluctuations. The average secular growth rate is the consummation, reflection, and description of them all, each and every one. This is why it is suitable to be a common denominator, a "rate of ignorance" by which to project the unknown future, thereby placing the appraisals of different stocks on the same comparative basis. And it is entitled to remain such until the historical rate shifts. Conversely, the level and the growth rate of the secular trend are unsuited to be the capitalization bases of today, because they stand as much for times and condi-

FIGURE II



tions quite different from our own. Today's valuation bases can be only at a level and at rates commensurate with the economics of our time.

RISING LEVELS

At annual intervals, from the inception of the period we study, *Figure III* traces 21-year trend lines through the curves of dividends and earnings. The first year of the period being 1871, the mid-point of the first trend line is placed at 1881. Between 1871 and 1955, there are 65 such trend lines. Their respective rates of growth are shown in Note 8 of the *Appendix*. As previously

mentioned, they provide the data for the correlation formula used to compute theoretical dividends.

The enlargement of the dimensions of the country's economy is reflected on *Figure III* in rising levels of corporate dividends and earnings. Despite all setbacks, "through chances various, through all vicissitudes"—to borrow Aeneid's phrase from the title page of Benjamin Graham's *The Intelligent Investor*—their respective trend lines were being steadily lifted. Since dividends are relatively more stable, the rise to higher plateaus is even more evident in their case. We did not project future dividends, but their new level may be visualized from analogy with earnings.

FIGURE III

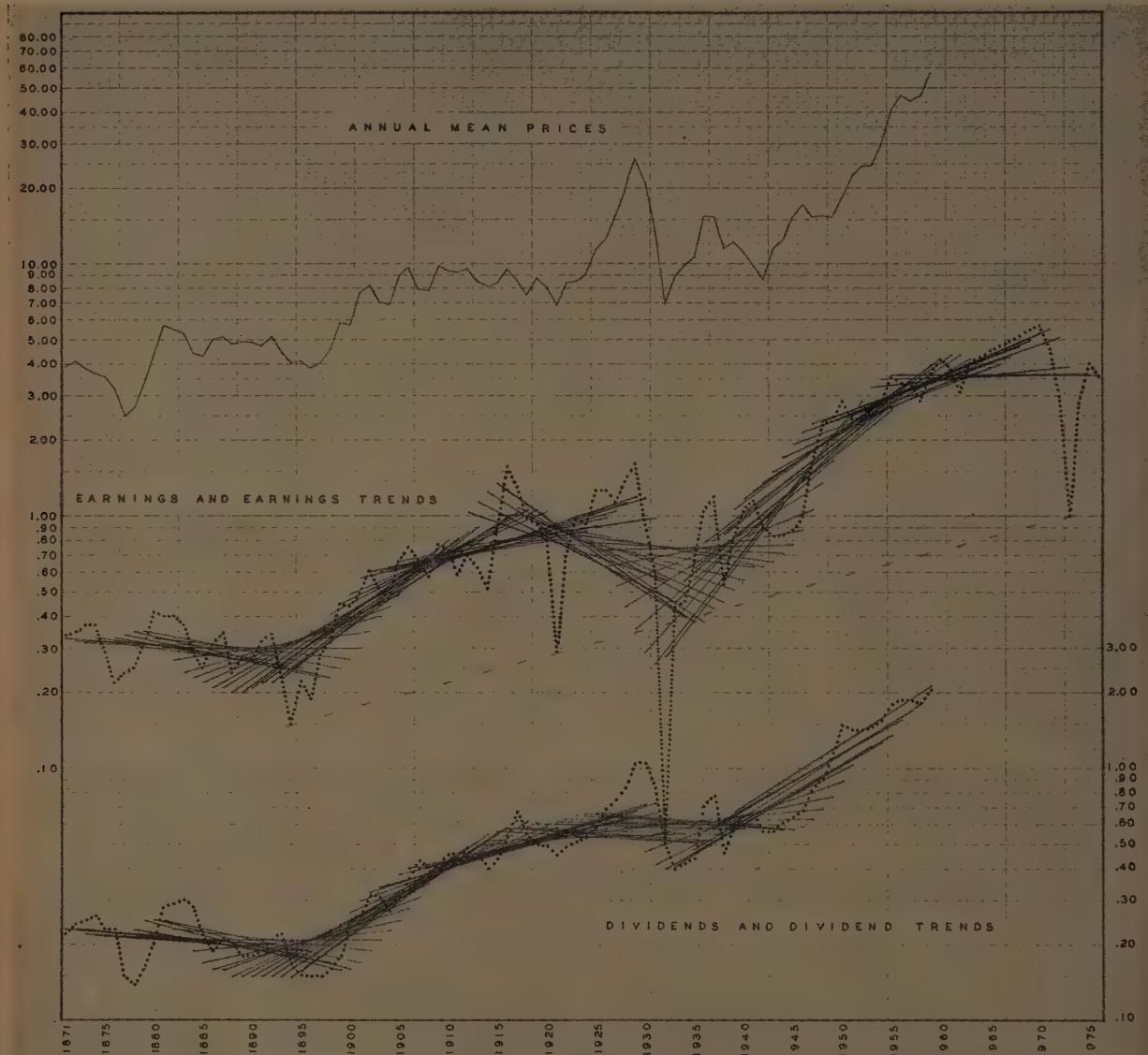


Figure III demonstrates that, in order to have significance as a current valuation base, a trend line of earnings must lie higher than their long-term secular trend, and higher even than the shorter trend lines averaging the earnings of such recent periods as the 1930's or 1940's. But how high? And at what point, in particular, may it be, in turn, extended by an indefinite projection of the rate of ignorance?

Figure II produces the impression that the 1970 point of \$57 per share of DJIA earnings—standing at the end of the experts' projection—may be too high for splicing to it an indefinitely extended 2½% annual growth rate. We might investigate, therefore, the implications of starting the indefinite projection at the 1960 inception of the experts' trend line, rather than at its 1970 terminal point. As can be seen on *Figure II*, this 10-year trend line's base is at \$35 of DJIA earnings.

To make this test, we shall use the long historical perspective of *Figure III*. Since DJIA does not reach far enough into the past, *Figure III* was constructed in terms of the "500" indexes. It utilizes the experts' 1960-1970 earnings trend line followed by a hypothesized severe decline. By precipitating projected earnings from their 1970 high into the abyss of a vicious depression which makes them decline more than 80% and, at their low, makes them touch bottom with some of the deepest earnings troughs of the preceding 100 years, the present earnings plateau would level out at just about the 1960 base of the experts' projection. If we extend the 2½% rate of ignorance indefinitely from this point, the resulting 1960 appraisal of the DJIA, 475, would be 95 points below the valuation based on the much higher 1970 point of the experts' trend line.

Long Cycles and Deep Depressions

Though unpleasant to contemplate, the possibility of such a severe depression can be rationalized. We can argue that by 1970 the recent powerful forces of economic growth may reach or pass their peak. Outside pressures could then conceivably push the American economy on a downward path. The economic masses now emerging in Europe could become powerful rivals. This is also likely to be true of Japan and, later, even of China. Soviet Russia could dump vast quantities of cruelly competitive goods on the free world's markets. According to press reports, Allen W. Dulles, Director of the Central Intelligence Agency, testifying last winter before the Joint Economic Committee of the Congress, warned: "We should frankly face up to very sobering implications of the Soviet economic program and the striking progress they have made over the last decade . . . If the Soviet industrial growth rate persists at 8% or 9% per annum over the next decade, as is forecast, the gap between our two economies by 1970 will be dangerously narrowed unless our own industrial growth rate is substantially increased from the present pace."

These forebodings of inclement economic weather building up to storms fit rather well into certain assumptions of academic thinkers. Some of the greatest theoretical economists, specializing in business cycles,

held that industrial history reveals very long cyclical waves containing several 9-10 year major cycles, each divisible in turn into three minor cycles lasting roughly 40 months.

A three-cycle scheme implies that the cycle of cycles contains four to six major cycles marked off on each side by severe recessions; it may be assumed that the all-inclusive and highest unit of cyclical fluctuations—the very long cyclical wave—is itself bordered by particularly deep depressions. As the rhythm of such long waves is believed to be 40 to 60 years, an interval of approximately 40 years would seem an acceptable minimum. Such a schedule could then list 1894, 1932 and 1973 as marking the lows of earnings declines bordering the long waves, or cycles of cycles.

If a depression of the size pictured on *Figure III* should be really in the cards for the 1970's, DJIA's overvaluation at its recent highs would have been on the order of 45% and could justify a compensating correction down to the 260 level. Assuming that we are presently in the early stages of so long a journey into the night, we are facing a bear market lasting several years which would bring us back to the lows of 1952 and 1953 or to the average level of 1951. In the dispassionate historical perspective of *Figures II* and *III*, the decline of a stock average to its 1951 annual mean price would not be out of line with the past. And it would also close the tremendous gap on the scale of prices on *Figure I*, which is so glaring above 1954 and seems to so completely detach, on that diagram, the last few years from the entire previous experience, shooting them out into space. Nature abhors void and may well choose to fill it.

Shattering depressions have happened before. We cannot guarantee non-recurrence. Moreover, since a 1960 investment value of 475 for DJIA is itself based on the hypothesis of a deep depression in the 1970's, its eventual onslaught—should it materialize—would inevitably be reflected in another drastic cyclical fall of stock prices soon after their presumably sharp recovery from the lows of, say, 1964. Such an expectation would tie in rather nicely with DJIA's 1960-70 earnings projection expressing the minority view of one expert as noted on *Figure II*. Should his prophecy sadly come true and, in addition, a deep depression occur at the end of the period covered by *Figure III*, the DJIA would reach by the late sixties a mountain top that could well stand as a lonely peak for the generation living on its foothills.

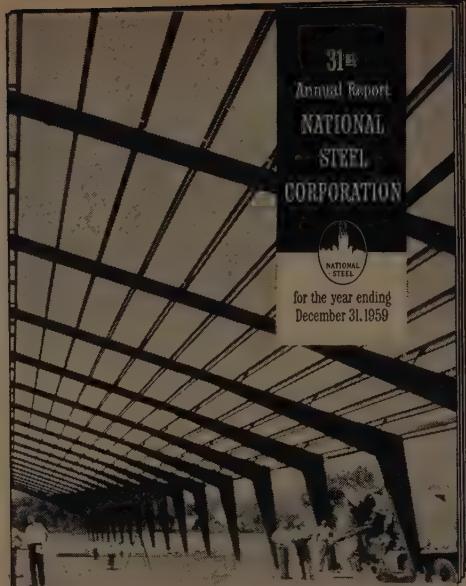
A More Hopeful View

How sound are the grounds for forecasting a deep depression for the early 1970's? In the light of the exhaustive statistical investigations by the late Wesley C. Mitchell and Arthur F. Burns—when they worked together at the National Bureau of Economic Research—some cumulation of successive cycles does seem to exist, but the relations between cyclical waves of various lengths are irregular.

Corporate earnings have sometimes avoided severe

NATIONAL STEEL REPORTS

on 1959 and the Future



National Steel's sales in 1959 approached the three-quarter billion-dollar mark and set a new high record. Net earnings—approximately \$55 million equal to \$7.28 per share—were exceeded in only one other year.

These results were achieved despite handicaps imposed by the long steel strike and, in the words of Chairman George M. Humphrey and President Thomas E. Millsop in the Annual Report:

"This is a practical demonstration of the marked increase in efficiency from the new and improved plants and facilities on which we have expended hundreds of millions of dollars in recent years."

Other 1959 highlights:

Production of 5,300,000 tons reflects an operating rate of 76% of capacity compared with an average rate of 63% for the steel industry as a whole. An important factor was continuance of operations throughout the strike at the Weirton Steel division which has a 27-year record of production without interruption by labor difficulty of any kind.

Employee compensation at a record high with total payments for wages, salaries and benefits of approximately \$220 million.

The \$300 million expansion program—somewhat delayed by the strike but now going forward at full speed and still scheduled for completion in 1961. Major elements of this great program:

. . . for the Midwest Steel division an entirely new steel finishing plant in the Chicago area to produce tin plate, galvanized steel, hot- and cold-rolled sheet and strip.

. . . for the Great Lakes Steel division in Detroit, the 80-inch "Mill of the Future" which will be computer controlled and the finest, fastest, most powerful hot strip mill ever built—plus a substantial increase in ingot capacity.

. . . for the Weirton Steel division at Weirton, West Virginia, and Steubenville, Ohio, improvements and additions to increase the production and further improve the quality of tin plate and cold-rolled sheets.

Property additions amounted to \$47 million in 1959. The remaining cost of construction, authorized and uncompleted as of December 31, 1959, amounts to approximately \$250 million.

A new Research Center, scheduled for completion early in 1961, will provide expanded facilities for the continuing program of research and development.

New Products—columbium-treated steels, low alloy, high strength steels, a new type of galvanized steel—scored important production gains, reflecting increasing demand from customers. New lines of pre-engineered buildings in a broader range of beautiful factory-applied colors were introduced by the Stran-Steel division and a new plastic-coated product was developed by the Enamelstrip division.

For the future, Chairman Humphrey and President Millsop say:

"We look forward to the real benefits of our construction program which will begin to be felt in 1961 and which, we are confident, will make a significant contribution to the improved position of National Steel Corporation."

1959: A SUMMARY

	1959	1958
Net sales	\$736,978,650	\$539,957,294
Net earnings	\$ 54,897,360	\$ 35,727,414
Net earnings per share	\$ 7.28	\$ 4.80
Total employment costs	\$219,991,506	\$182,223,804
Total dividends paid	\$ 22,522,643	\$ 22,298,906

We will be glad to send you a copy of our 1959 Annual Report on request.



Grant Building, Pittsburgh, Pennsylvania

NATIONAL STEEL CORPORATION

Major divisions: Great Lakes Steel Corporation • Weirton Steel Company • Midwest Steel Corporation • Stran-Steel Corporation

Enamelstrip Corporation • The Hanna Furnace Corporation • National Steel Products Company

depressions for long intervals: 27 years elapsed between the troughs of 1894 and 1921. Yet only 11 years separated the latter from the depths of 1932; and the steep decline of 1938 followed within just another six years. On the whole, statistical explorers of business cycles believe that it is vain to strive for a general theory. Each crisis, they contend, is an episode brought about by endlessly different combinations of conditions.

As we all know, cyclical fluctuations have recently been much milder. While the three recessions that occurred during the postwar period were unequal in intensity and duration, none was comparable in severity with the earlier depressions, such as those whose earnings troughs—within the period covered by *Figure III*—were in 1876, 1894, 1921, 1932 or 1938.

Many economists believe that this happy situation will continue. In a recent address, Arthur F. Burns is reported as stating "the business cycle is unlikely to be as disturbing or troublesome to our children as it once was to us or our fathers." He attributed the improvement to many structural changes in the economy; among them, to the well publicized "automatic stabilizers" and to the way in which consumer incomes hold up when production is declining. The Rt. Hon. Hugh Gaitskell expressed a similar opinion earlier this year on a TV "Open End" program. As a visitor to these shores and leader of the British Labour Party, there is no reason to suspect him of either wishful thinking or capitalistic bias.

Statistically, this view supports the reasonableness of an indefinite extension of the earnings trend line at a 2½% annual growth rate from the 1970 terminal point of the experts' projection shown on *Figure II*. And it still allows for an earnings decline of some 40% at the end of the period on *Figure III*. To repeat, it gives 570 as a 1960 valuation for DJIA.

We are reverting to this appraisal once more—not because it is more optimistic, but because it is more in tune with the collective view of men well trained and experienced in our profession. By splicing the rate of ignorance to their projection, we should attain a more representative appraisal of investment value. To assume a deep depression may perhaps seem more conservative and cautious and, therefore, a more suitable guide for wise and prudent men. Yet it represents no more than an analogy with the past that may not be applicable to our times.

No appraisals of investment values are meant as Judgment Day verdicts. They are merely expressions of present conditions and reasonable estimates of the future. If both change, investment values are adjusted. Indeed, values must change inevitably. The future becomes clearer as time passes. Today's appraisals of investment values for 1965 or 1970 will gradually change with each successive year.

To soothe the pessimists we point out that even our more favorable appraisal of the investment value of DJIA was far exceeded by actual stock prices during the bull market that had its inception in October 1957 from a level of just under 420. The 570 level was

reached and exceeded by the market late in 1958. As this article goes to press, at the beginning of April 1960, stock prices, which have been declining since the turn of the year, have not receded to the 570 level. In other words, in terms of this appraisal of its investment value, the DJIA has remained overvalued for almost a year and a half, despite the corrections that have been taking place. At DJIA highs of early this year and late last summer, this overvaluation was about 20%. If the balance should be redressed, eventually bringing the DJIA to a 20% undervaluation, it would decline to about 455.

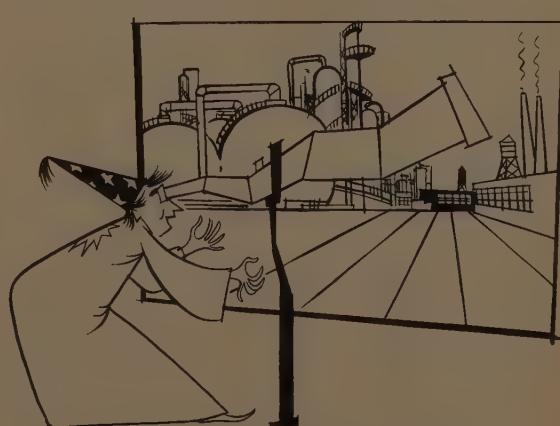
Stock Values and Stock Prices

PART II of this study will consider the practical applications of *investment values* of averages of the general market, as well as of individual stocks. It will also trace their *price orbits* and discuss the relations of value and price, the effects of cyclical fluctuations in business on stock prices, and the techniques of stock market timing.

In the meantime, a quotation from an article by Professor Robert H. Wessel, of the University of Cincinnati, summarizes well the reasons why students of stock prices need an independent measure of value:

"It is my belief that any attempt to predict where the stock market is going should begin with some sort of an estimate of where it now is. Although some writers try to sidestep this question, to me it seems unavoidable. When one assesses the current position of the market he necessarily employs some sort of standards that help him judge whether it is too high, too low, or at a reasonable level. Any such discussion is most meaningful when the writer explicitly states what those standards are, thereby enabling the reader to follow his analysis without doubt or confusion."

"... It seems to me that both the prices of individual stocks and the levels of the market as a whole should be evaluated in terms of the earning power estimates and capitalization rates implicit in these prices or market levels." (*Today's Stock Market Values and the Longer Term Prospects*, *The Commercial and Financial Chronicle*, Feb. 18, 1960)



Value is on the Ground—NOT in the Stars

To construct an independent standard of value, we took great pains not to inject alien elements. Not only did we keep our standard free from price itself, which it is expected to measure, but also from any indirect mixtures. Our capitalizers are only related to the characteristics of the earnings themselves; our discount rate is firmly rooted in the effective return from stocks. Neither of these factors can be affected by money market changes which are as unrelated to stock values as are price fluctuations. And by keeping both the discount rate and the rate of growth for projecting future earnings beyond the horizon of visibility fixed, we not only attain comparable investment values, but also cut down the number of variables entering into the valuation equation.

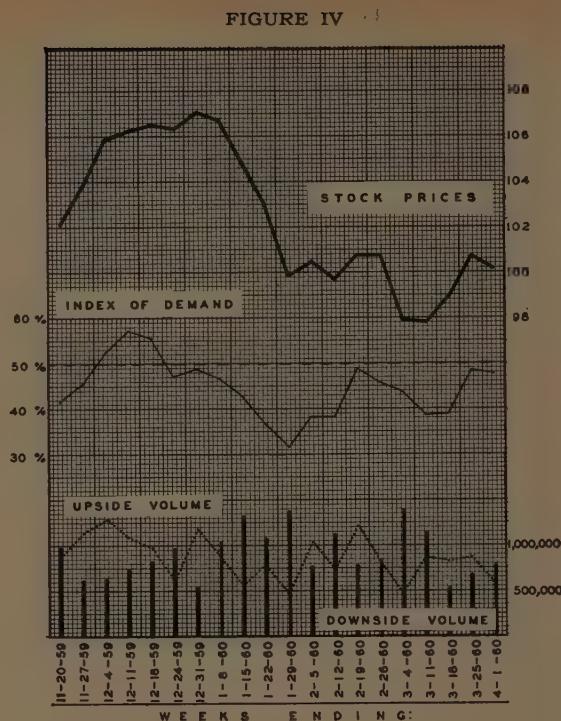
Our excursions into the unknown future are less adventurous than they may seem. *Valuation of Common Stocks* discusses at length the role and the effects of the discount rate on appraisals of present worth. By discounting future payments at our $7\frac{1}{2}\%$ rate, we reduce \$1 to a dime within 32 years; and an additional decade shrinks it to a nickel. Thus, while the mathematical formulae used for the computations must be geared to handle infinity, the practical limits of our problems are much less majestic and forbidding. But even within the confines of this limited future, Financial Analysts should not let their imaginations run wild. By unwarranted assumptions they may be erecting Babylonian towers of value instead of reaching legitimate appraisals. Even relatively small changes in the multipliers, in the discount rate, in the estimated rates of future earnings growth, and in the number of years of their projected duration can cumulate to surprisingly large effects, especially when the changes are all in the same direction.

Business Cycles

As a transition to PART II, we should stress that investment value is only one of the factors shaping the prices of stocks. Another vital determinant is the business cycle. Stock prices are among the most sensitive economic time series. In their later phases, cyclical expansions and contractions bring about substantial overpricing and underpricing of stocks.

In its March 16, 1960 issue, *The Cleveland Trust Company Business Bulletin* reminds us that the average length of the nine complete cycles of industrial production, since the end of World War I, was 42 months, consisting of 27 months on the upside and 15 down. The upward phase of the current cycle has already rounded out two years; soon it will be living on borrowed time. And since stock prices usually lead business at cyclical turns, the present picture seems to fall neatly into a cyclical pattern.

Because of their wide variations in amplitude and duration, and the great complexity of the interrelations of economic factors, there are no reliable ways for forecasting cyclical turning points. But electronic computers could be an invaluable aid in keeping abreast of developments almost simultaneously with their unfolding. In *Measuring Recessions*, published as *Occasional Paper*



61, by the National Bureau of Economic Research, in the fall of 1958, Geoffrey H. Moore relates that such research "began during the recession of 1953-54, when tables comparing the percentage changes in a long list of economic series during the current and preceding recessions were prepared for Arthur F. Burns, then Chairman of the Council of Economic Advisers.

"In October 1957 R. J. Saulnier, present Chairman of the Council, requested the assistance of the National Bureau in preparing a similar set of tables. Tables covering some 70 monthly and quarterly economic series were promptly prepared. . . . The electronic computer program was developed with the aid of a grant from the National Science Foundation. The International Business Machines Corporation generously contributed machine time on the 704 computer. These resources were essential to the pursuit of the study. No less essential were the intellectual and financial resources that have over the years been invested in the National Bureau's studies in business cycles. The present report is, in the truest sense, a product of these contributions, for the data and methods used here are virtually all derived in one way or another from this earlier work."

The reward of these experiments was that in the spring of 1958, when even the strongest and best informed institutional investors were still wallowing in deep pessimism and dejection, the Council of Economic Advisers was already well aware that the recession was unlikely to last much longer. Since so much is at stake, we can safely predict that the use of these techniques

will become accepted practice among large investors and that the problem of cost will be solved, if necessary, by collective action.

Supply and Demand

A further refinement of timing may be sought in direct analysis of demand for and supply of stocks. Many methods exist. *Figure IV* offers an illustration.

While presented in graphic form, *Figure IV* has no relation to charts of price action mentioned earlier in this paper. It attempts to measure the relative strength of buying and selling; it is not preoccupied with behavior patterns.

Stock market analysis should be used with great discretion. It deals with surface conditions. During a period of basic economic change, they may dissolve without much impact on the prices of stocks.

The curve of stock prices on *Figure IV* traces the author's composite index of 70 leading equities representing a wide range of economic activity. It includes utilities and rails as well as industrials. The weekly volumes are adjusted for stock splits and for the number of trading days when holidays occur.

The Index of Demand is the ratio of moving totals of daily upside volume to the moving totals of all the shares traded in our 70 stocks.

Recently, the Index of Demand was acting better than the Index of Stock Prices. When the latter made its low, the Index of Demand was already in an uptrend. Through the week ending April 1, it was revealing as yet no precursory weakness as it did at the end of 1959. In PART II we shall bring *Figure IV* up to date and discuss at greater length the possibilities and limitations of market analysis.

(Part II of this presentation will be published in the July-August issue of The Financial Analysts Journal—Editor).

APPENDIX References and Notes

1. The Exchange, a monthly magazine published by the New York Stock Exchange, December, 1944.
2. Data for Figure 1.
 - A. Prices: Standard & Poor's "500" Prices (1941-1943 = 10) were used from 1918 to date. Prior to 1918, Prices are those of the Cowles Commission Index Series Pea-1 (i.e. Prices of stocks for which Earnings data are available) converted to the 1941-1943 = 10 base. The annual figures are arithmetic averages of monthly mean Prices.
 - B. Earnings from 1926 to date are those published by Standard & Poor's for the composite "500" Index. They are twelve months' moving totals through the fourth quarter and thus represent Earnings for the full calendar year specified in each case. (See D below.)
 - C. Earnings prior to 1926 were compiled by multiplying Prices by the Cowles Commission Earnings-Price Ratios. These ratios are total reported Earnings in each calendar year divided by total stock values as represented by an average of monthly Prices for the year.

D. Earnings for 1932 were derived from the Cowles Commission Earnings-Price Ratio in order to give recognition to the many deficits in Earnings that year. The S. & P. Earnings figure was arrived at by using zero for all deficits. This produced an Earnings figure of 0.41 and a Price-Earnings Ratio of 16.9 as compared with Earnings of 0.05 and a Price-Earnings Ratio of 138.9 when the Cowles Earnings-Price Ratio is used. The latter is more representative of the trough of this severe bear market.

- E. Price-Earnings Ratios from 1926 to date were arrived at by dividing the S. & P. Prices by the S. & P. Earnings for the year with the exception of 1932, as explained in D above.
- F. Prior to 1926 the Price-Earnings ratios are the reciprocals of the Cowles Commission Earnings-Price ratios.
- G. In all cases, Price-Earnings Ratios are computed from average annual Price and the year's total Earnings.

Prices, Earnings, and Price-Earnings Ratios, 1871-1959

	Prices	Earnings	P/E
1871	3.90	.34	11.6
1872	4.09	.35	11.6
1873	3.85	.37	10.5
1874	3.68	.37	10.0
1875	3.58	.29	12.3
1876	3.21	.22	14.5
1877	2.50	.24	10.5
1878	2.70	.25	10.8
1879	3.36	.31	10.9
1880	4.33	.41	10.6
1881	5.66	.40	14.1
1882	5.52	.40	13.8
1883	5.27	.37	14.2
1884	4.41	.29	15.4
1885	4.29	.25	17.0
1886	5.00	.31	16.3
1887	5.16	.34	15.3
1888	4.80	.24	20.0
1889	4.92	.27	17.9
1890	4.90	.27	18.4
1891	4.74	.32	15.0
1892	5.17	.34	15.2
1893	4.43	.24	18.1
1894	4.03	.15	27.0
1895	4.14	.22	18.5
1896	3.87	.19	20.1
1897	4.03	.28	14.5
1898	4.59	.32	14.5
1899	5.82	.45	13.0
1900	5.72	.44	12.9
1901	7.64	.49	15.7
1902	8.22	.61	13.4
1903	7.01	.52	13.5
1904	6.86	.47	14.5
1905	8.90	.66	13.4
1906	9.61	.76	12.6
1907	7.89	.67	11.8
1908	7.83	.58	13.5
1909	9.79	.77	12.7
1910	9.37	.73	12.8
1911	9.24	.59	15.6
1912	9.52	.70	13.6
1913	8.50	.63	13.4
1914	8.07	.52	15.6
1915	8.39	.89	9.5
1916	9.56	1.55	6.2
1917	8.63	1.30	6.6

(Continued on next page)

Prices, Earnings, and Price-Earnings Ratios, 1871-1959

Continued

	Prices	Earnings	P/E
1918	7.54	.99	7.6
1919	8.78	.93	9.4
1920	7.98	.80	9.9
1921	6.86	.29	23.7
1922	8.41	.69	12.1
1923	8.57	.98	8.8
1924	9.05	.93	9.7
1925	11.15	1.25	8.9
1926	12.59	1.24	10.1
1927	15.34	1.11	13.8
1928	19.95	1.38	14.5
1929	26.02	1.61	16.2
1930	21.03	.97	21.7
1931	13.66	.61	22.4
1932	6.93	.05	138.9
1933	8.96	.44	20.4
1934	9.84	.46	21.4
1935	10.60	.65	16.3
1936	15.47	1.03	15.0
1937	15.41	1.20	12.8
1938	11.49	.54	21.3
1939	12.06	.82	14.7
1940	11.02	1.04	10.6
1941	9.82	1.18	8.7
1942	8.67	.91	9.5
1943	11.50	.83	13.9
1944	12.47	.84	14.8
1945	15.16	.88	17.2
1946	17.08	.99	17.3
1947	15.17	1.61	9.4
1948	15.53	2.29	6.8
1949	15.23	2.37	6.4
1950	18.40	2.83	6.5
1951	22.34	2.45	9.1
1952	24.50	2.41	10.2
1953	24.73	2.65	9.3
1954	29.69	2.76	10.8
1955	40.49	3.54	11.4
1956	46.62	3.35	13.9
1957	44.38	3.28	13.5
1958	46.24	2.84	16.3
1959	57.32	*3.39 est.	16.9

8. Growth Rates of Earnings and Dividends, 1871-1959

Cowles Commission Indexes Extended as Indicated in Valuation of Common Stocks

Growth Rates Are Computed for 21-Year Trend Lines

Periods	Earnings	Dividends
1871-91	-0.64%	-0.66%
1872-92	-0.40	-0.65
1873-93	-0.51	-0.42
1874-94	-1.17	-0.43
1875-95	-1.17	-0.53
1876-96	-1.64	-0.73
1877-97	-1.98	-0.91
1878-98	-2.06	-1.55
1879-99	-1.67	-2.14
1880-1900	-1.04	-2.23
1881-01	+0.02	-1.91
1882-02	+1.37	-0.94
1883-03	+2.45	+0.06
1884-04	+3.28	+0.91
1885-05	+4.14	+1.91
1886-06	+4.89	+2.74
1887-07	+5.62	+3.51
1888-08	+6.20	+4.22
1889-09	+6.57	+4.85
1890-10	+6.91	+5.33
1891-11	+6.79	+5.70
1892-12	+7.05	+6.06
1893-13	+7.17	+6.41
1894-14	+6.42	+6.58
1895-15	+5.56	+6.34
1896-16	+5.84	+6.14
1897-17	+5.39	+6.05
1898-18	+4.86	+5.47
1899-19	+4.28	+4.70
1900-20	+3.85	+3.94
1901-21	+1.98	+3.30
1902-22	+1.47	+2.85
1903-23	+1.71	+2.62
1904-24	+1.58	+2.38
1905-25	+1.63	+2.00
1906-26	+2.04	+1.89
1907-27	+2.41	+2.00
1908-28	+2.81	+2.32
1909-29	+3.03	+2.56
1910-30	+2.84	+2.79
1911-31	+1.33	+2.76
1912-32	-3.11	+2.08
1913-33	-4.62	+1.10
1914-34	-5.80	+0.29
1915-35	-6.70	-0.56
1916-36	-6.14	-0.73
1917-37	-4.65	-0.48
1918-38	-3.96	-0.33
1919-39	-3.14	-0.29
1920-40	-2.15	-0.23
1921-41	-1.15	-0.15
1922-42	-1.75	-0.41
1923-43	-1.35	-0.59
1924-44	-0.50	-0.69
1925-45	+0.23	-0.75
1926-46	+1.66	-0.51
1927-47	+3.61	+0.03
1928-48	+5.72	+0.87
1929-49	+7.89	+1.91
1930-50	+10.60	+3.25
1931-51	+12.32	+4.50
1932-52	+12.38	+5.43
1933-53	+9.01	+5.61
1934-54	+8.04	+5.41
1935-55	+7.48	+5.31
1936-56	+7.17	+5.17
1937-57	+7.47	+5.54
1938-58	+7.84	+5.92
1939-59	+6.74	+5.90

*This is Standard & Poor's most recent estimate of 1959 Earnings for the "500" index. Being lower than the estimate obtained at the time Figure I was prepared, the adjusted 1959 P/E is higher than that shown on the scatter diagram.

3. Op. cit., p. 93. This volume was published in 1937 by the Whittlesey House, a division of the McGraw-Hill Book Company, Inc. It was a pioneering work. The late Mr. Skinner's influence continues to grow through the increasing numbers of followers applying methods originated by him for measuring relations between stock market movements and money flows as reflected by banking and credit trends.

4. See the stimulating paper contributed to the March 1959 issue of The Journal of Finance by Harry V. Roberts of the University of Chicago.

5. "Stock Prices and Current Earnings", The Analysts Journal, August, 1955.

6. F. W. Taussig, Principles of Economics, (The Macmillan Company, New York, 3rd ed., 1926), Volume II, p. 45.

7. Frederick R. Macaulay, "Some Theoretical Problems Suggested by the Movements of Interest Rates, Bond Yields and Stock Prices in the U. S. since 1856." (National Bureau of Economic Research, 1938), pp. 129-30.



Like the Production of a New Car...

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Significant Facts from the 1959 Annual Report

FOR THE YEAR	1959	1958
Net sales	\$176,811,659	\$171,360,980
Depreciation of properties	14,105,539	13,588,974
Net earnings	10,058,232	9,998,374
Cash dividends paid on preferred stock.....	899,362	1,590,197
Net earnings reinvested in the business.....	<u>9,158,870</u>	<u>8,408,177</u>
Net earnings per common share.....	<u>\$5.32</u>	<u>\$5.18</u>
Net additions to properties	\$ 10,309,738	\$ 22,978,449

AT THE YEAR-END

Working capital	\$ 41,305,189	\$ 43,924,343
Total investment in properties—at cost.....	185,799,655	177,363,915
Long-term debt	67,420,000	75,546,000
Equity of common shareholders	<u>81,020,107</u>	<u>61,273,330</u>
Equity per common share	<u>\$47.03</u>	<u>\$41.60</u>
Number of common shares outstanding....	1,722,877	1,489,130
Number of employees	4,300	4,114
Number of common shareholders	6,481	4,807

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1959
2,040,000 TONS
CAPACITY

1934
10,000 TONS
CAPACITY

Economic Significance of Europe's 'Outer Seven'

by Malise L. Graham

THE BRITISH CHANCELLOR of the Exchequer (Heathcote Amory) stated recently in the House of Commons that establishment of the Free Trade Area was an "historic event" marking: (1) a big step towards a closer association of Britain with Europe, 90,000,000 people in Austria, Denmark, Norway, Sweden, Switzerland, Portugal and the United Kingdom working for liberal trade-creating principles, and the elementary right to buy and sell where they want; (2) its existence as a bargaining force transforms the situation and cuts the ground from under those who said EFTA was "unworkable"; and (3) it marks an important step towards resuscitating the original conception of a Free Trade Area embracing all Europe, and in fact the overriding objective of the Treaty.

This article assumes a knowledge of the European Economic Community (EEC or Common Market). The political aspects, which have been well dealt with by Agostino Soldati, in his article "Economic Disintegration in Europe," in the magazine *Foreign Affairs* (October 1959) will also only be mentioned.

EFTA changes nothing, in respect of tariffs, so less is heard of it. The object here is, first, to give the facts about EFTA, and, secondly, to explain how the outcome of the "argument" vitally affects every American. A good solution will materially improve his prosperity and security, while a bad one will impair it, weaken the Free World, and delay economic growth. Further, it must be noted that it is a mistake to

consider this just as a European squabble; e.g., "they're at it again." In fact, the problem and its solution, are largely conditioned by the United States relationship to Europe.

The questions we have to answer are: (1) Why has EFTA created such a stir; and (2) How is it that France, with her unexampled achievements in every field of human endeavor and, for 1,000 years the main sword and the main shield of Western civilization, finds itself in a different camp from England which has so frequently and

national trade was expanding at a rate never since regained. In fact, expansion is an inadequate word. Trade multiplied over and over again while constantly increasing output, and productivity kept prices stable or slightly declining.

Expanding trade was the result of the progressive dismantling of the mercantile system, sparked by Adam Smith, and completed in 1846 with the abolition of the Corn Laws, coupled with the establishment of the first scientific monetary standard in history (the Sterling Gold Standard). It became the statutory obli-

History records that money is often picturesquely surrounded in mystery—and similarly the economics of import-export. And now Europe is literally at "sixes and sevens." It's somewhat of an economic cloak-and-dagger mystery across the European continent. The "Inner Six" comprise the European Economic Community—that is, the Common Market. "The Outer Seven" comprise the European Free Trade Association. The relations of both will approach a critical time (after July 1, 1960) if they have not come to some agreement for working closer together.

OEEC COUNTRIES Population in thousands

The Inner Six (EEC) Countries	
France	44,500
West Germany	52,150
Italy	48,735
Belgium	9,053
Netherlands	11,173
Luxembourg	320

The Outer Seven (EFTA) Countries	
United Kingdom	51,680
Sweden	7,415
Norway	3,526
Denmark	4,530
Switzerland	5,185
Austria	7,021
Portugal	8,980

recently "saved herself by her exertions, and Europe by her example?" Both nations, after all, owe each other so much and need each other in the future. In discussing this, for the purpose of analysis, the economic and political factors are best separated, but it must be remembered that in fact they are related.

Freer Trade in History

One hundred years ago was the height of the Free Trade Era when Cobden was signing his famous Treaty with France, and interna-

gation of the Bank of England to buy and sell gold in unlimited quantities at a fixed price. Thus, a flow of gold was transformed into a flow of commodities.

After 1870, however, tariff barriers, led by Germany began to rise round the world (except in Britain) and the rate decline reached a new low in 1931 when Great Britain herself was obliged to abandon Free Trade. But, since World War II, inflation and a certain lowering of tariffs, have no longer impeded world trade to the same extent.

Malise L. Graham, is a member of the research department of Faulkner, Dawkins & Sullivan, specialists in institutional stock. Mr. Graham, whose career has been entirely in international trade, here and abroad, is a Fellow of the Royal Economic Society and follows developments in international trade to determine their effects upon U. S. investors and corporations.

Table I

EFTA is smaller than the EEC but imports as much or more from the outside world and per capita production is greater.

	Output (\$ bill.)	Population		
EFTA	90.0	88 million		
EEC	140.0	170 "		
	Imports			
	From EFTA	From EEC	From Rest of World	Total Imports (\$ bill.)
EFTA	15%	25%	60% plus	19.0
EEC	20%	30%	50%	22.0

Note: For U.K. percentage of imports from rest of world is 80%. All figures are, of course, subject to variation. International Trade Statistics are too much subject to error to be considered accurate on exact percentage.

Table II

Imports as a % of GNP	
Other EFTA	24%
United Kingdom	18%
United States	4%

Free trade, like the Balance of Power of which it was a part, was much more than its name implies. In the economic sphere it was adopted because it mitigated the debt-collecting power of the gold standard through constantly increasing imports and capital exports on the part of the creditor. In the political arena, it was a derogation from Absolute National Sovereignty and State Interventionism, and thus attenuated the competition for power but compensated for this by increasing security through intensifying and broadening commercial intercourse, and so mutual interdependence.

Facts about EFTA

The primary fact about EFTA is its large foreign trade component. With just over half the population of the EEC countries, it, nevertheless, imports more than the outside world, and a third as much again as the U.S.A. (*Table I*). Imports, in fact, account for 25% of the Gross National Product for other EFTA and 18% for the U.K. (*Table II*). Of EFTA imports, only about 13% comes from other EFTA members; about 25% from EEC; and 60% or more from the rest of the world. But in the case of the U.K. it is as high as 80% (*Table III*). For exports the proportion is roughly the same. On the other hand, EEC has a relatively far smaller trade with the out-

side world (as noted) getting 30% or more from itself; around 20% from EFTA; and about 50% from the rest of the world. Further, note that Switzerland imports much more from the EEC than it exports to it, while with West Germany and EFTA, it is the reverse (*Table IV*).

The second basic fact is that per capita incomes are higher in EFTA than EEC. With just over half the population, EFTA has an income of two-thirds as great, and this expresses itself in a higher standard of living.

Sweden, Switzerland and the U.K. are among the richest countries in the world, while the U.K. has, outside the U.S., the Free World's most powerful economy and is the largest creditor, investing more per capita abroad than the U.S. Thus, with their shipping (the U.K. and Norway together account for approximately one-third of the world's active merchant fleets) EFTA has a large income on "invisible account." Linked to the Commonwealth and Sterling Area (of which some of them were "founder members"), with its vast raw material and gold-producing resources, the EFTA is, therefore, a formidable force in world trade which it would be foolish to underestimate.

The third basic fact about EFTA is that although not "supra-national" it is "super-political"—that is to say it has gone beyond purely political limitations. Some members are also members of the North American Treaty Organization, but the group also includes neutrals (e.g., Sweden and Switzerland) who have impor-

tant reasons for not abandoning their neutrality. Austria is forbidden by State Treaty to do so, but Finland may become a member. None of these nations could join a "Common Market" as the "Common Market" is now set up.

These then are the fundamental economic facts which explain establishment of the EFTA. Its first duty is to maintain its trading relations with the outside world so that it can earn its imports.

Here we come to another difference between EFTA and EEC; namely in their approach to the problem of undeveloped countries. For EFTA, trade is a two-way cooperative street from which both sides draw strength. It seeks to eliminate the Cornucopia idea or pure-debtor/creditor relationship. Thus, it considers Monetary Cooperation rather than a "plan" as the solution. The developing nations know their own needs better than outsiders and so the essential thing is to keep the markets of the West open to absorb the extra production generated by its capital investments in the undeveloped areas.

The Provisions of EFTA

The provisions of EFTA are simple and derive from the essential difference between a Free Trade and a Common Market; namely, that in a Free Trade Area the members keep their individual tariffs towards the outside world, while in a Common Market they erect a Common Tariff.

At the end of World War II it was realized a big effort would be necessary to restore international trade which had fallen on such evil days in the thirties to something like its pre-1914 status. This intention emerged not in the idea of Free Trade, which nobody really wanted at the time, but in multilateralism and non-discrimination, to be achieved through the MFN (Most-Favored-Nation Clause, whereby a concession granted to one nation is automatically granted to all others). Unfortunately, the planners had forgotten the other half of the equation; namely, planning for Balance of Payments Equilibrium. As a result, these ideas could not be ap-

plied 100%, so, although the obligation was written into the various Mutual Aid programs, GATT (General Agreement on Tariffs and Trade) was riddled with exceptions to such an extent that it inevitably posed the question: "Were these exceptions temporary, or were they due to the fact that the principles (of Multilateralism and Non-Discrimination) were unsuited to contemporary conditions?" Broadly speaking GATT exceptions protected the weaker nations industrially and the U.S. agriculturally.

Furthermore, for a government to abandon import controls meant abandoning a vital element in its sovereignty and independence. As it turned out, even the limited application they received was too much. Marshall Aid and the OEEC (Or-

ganization for European Economic Cooperation of 17 Nations), a body which discriminated against the U.S., were necessary to bring world trade back into balance. (On the other hand it must be remembered that the U.S. tariff was always discriminatory toward Europe). The OEEC made tremendous progress in reducing intra-European trade barriers through the abolition of quotas (but not tariffs) on a discriminatory basis; i.e., while maintaining quotas against the U.S. This was acceptable to the U.S. at the time because it was precisely this discriminatory liberalization which enabled the European economies to recover so fast and to restore convertibility as at present.

But OEEC did nothing about reducing tariff barriers. This was done

within GATT on a MFN basis. "Across the board" reductions covering a wide range of articles were made, and this worked very well for a time. Now, however, that the stage has been reached when there are only relatively few articles left, reductions are much more difficult, for so long as a wide range of reductions was possible, any miscalculations were self-adjusting; i.e., averaged out.

Finally the whole situation is now bedeviled by the present weakness in the U.S. Balance of Payments. The U.S. is no longer in the position when it can afford to accept discrimination as in the past; nor can it accept abolition of all tariffs between Europe and North America, for under existing circumstances imports into the U.S. would probably increase faster than exports. On the other hand, the other nations are not actually strong enough to accept the U.S. on a basis of full equality in their own markets. Thus, the whole question of principle—which everyone hoped was becoming solved at the last moment and after tremendous progress — once more arises.

"Are the principles of the GATT, etc., suitable to present conditions and to resolve the problems between the EFTA, EEC and U.S./Canada, or are we about to see something which will amount to a basic change in international arrangements?" This is what is behind the statement that the OEEC is too narrow, and the GATT too wide; and it is around this problem that the entire present negotiations, or lack of them, revolves.

In considering problems of international trade it must always be remembered that the driving force, economically, is advantage in exchange.

Concretely, the question poses itself as follows: The EFTA desires to "build a bridge"; i.e., a preferential area composed of itself and the EEC. Economically it argues that this would be the most "trade creating" solution, as such a market would grow more rapidly than the "Six" and "Seven" by themselves. This would mean, of necessity, in-

Table III
Where E.F.T.A. Countries Get Their Imports
(1958, £m.)

Exporter/Importer	Austria	Denmark	Norway	Portugal	Sweden	Switzerland	U.K.	All E.F.T.A.
Austria	—	3	2	1	6	13	8	33
Denmark	3	—	21	1	34	6	116	180
Norway	2	17	—	2	28	3	56	107
Portugal	1	2	1	—	3	1	15	22
Sweden	4	48	74	5	—	9	135	275
Switzerland	16	10	7	6	18	—	37	94
U.K.	17	109	72	22	118	35	—	373
E.F.T.A.	43	189	177	37	207	66	366	1,085
E.E.C.	208	173	165	67	353	359	535	1,859
Rest of the World	132	116	125	67	284	186	2,879	3,791
World	383	478	467	171	844	611	3,780	6,735

Source: HM Treasury & British Information Services.

Table IV
Destination of Exports of EFTA and EEC Countries
(Per Cent)

Origin:	Destination		
	EFTA	EEC	Rest of World
EFTA	17	22	61
United Kingdom	10	12	78
Sweden	35	31	34
Switzerland	16	39	45
Denmark	40	31	29
Austria	10	50	40
Norway	37	27	36
Portugal	17	25	58
EEC	22	30	48
Germany	27	27	46
France	13	22	65
Netherlands	25	42	33
Belgium-Luxembourg	16	45	39
Italy	22	24	54

Source: United National Economic Commission for Europe.



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creased imports with a direct benefit on U.S. exports, while increased American investment there would increase U.S. investment income. Secondly, the tariffs of the two groups—particularly in view of the British need for widening markets and lower tariffs — would come down quicker.

Then, EFTA argues that under GATT, the EEC Common Tariff may not be higher than the average of its members. Therefore, since outsiders are already competing over these individual tariffs, if *the clause has any meaning*, the Common Tariff cannot result in any greater total exclusion, although it would bring about a change in the composition of trade. In any case, the Common Tariff is subject to review by GATT and so bargaining on it cannot take place until later this year. Even then EEC will find it difficult because any change requires unanimity, that is, one member refusing a reduction could block all the rest.

Finally it is argued that integration is the best way to obtain the benefits of greater productivity and help re-establish a Europe as integrated as it was before 1914 when there was complete freedom of movement of labor, capital and goods—none of which is even contemplated today.

Why is this rejected by EEC? The answer, however inappropriate, is political.

U.S. INTEREST AND POSSIBLE SOLUTIONS

The U.S. tariff bargaining position is weak for under existing legislation it is limited to a 20% reduction (subject to escape clauses). Over the next five years the co-operation of the EEC could be obtained by the U.S. and EFTA combined. But short run fears for the U.S. balance of payments conflict with this objective.

However, the problem cannot be solved on the basis of *maintaining existing positions* or petty haggling on the "I won't buy yours unless you buy mine" basis. No nation in the world is going to maintain itself on existing trade. Far wider considerations apply and the U.S. is well

placed to take advantage of future developments, and would, in fact, be foolish not to do so.

The British government has already given examples of its desire not to entrench behind existing positions by its cottons import policy and renegotiation of Dominion preferences to enable the Dominions to negotiate with EEC.

Once this principle of change (but orderly change) is admitted, a solution becomes possible.

Solution—Trade Expansion

Justice, Equity and contractual obligations are perhaps the only invariables in politics. All the rest are valid only in the framework of existing situations; i.e., relativity is the only guide. Doctrines and dogmas must not be allowed to obstruct what is necessary. The obvious solution to the triangle problem — let us hope not eternal—of the EFTA-EEC-U.S./Canada is trade expansion, rapid and wide. We have seen how U.S. exports grew by \$4,500,000,000 between 1954-57, a period of world wide expansion. In fact there is no other solution.

Exports to Europe will increase for three reasons: (1) increased output there will require more raw materials; (2) higher income will result in increased consumer spending; and (3) increased industrialization will require more capital goods, while investment income will increase faster due to more rapid development. Finally, this increase in European output will enable them to contribute more to the underdeveloped countries and the arms burden. In no other way can the Cold War be won.

Freer trade—to revert to our example at the beginning—should not always be suspected of causing balance of payments problems, when, in fact, it can contribute to their solution. Of course, greater U.S. investment in Europe could temporarily strain the balance of payments, but what better use could be made of the gold reserve than to transform it into a productive investment?

Finally, all this would take place more rapidly as tariff barriers would come down more quickly. The



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United States is the world's leading supplier of all types of goods and investment capital which would come into increasing demand as a result of the developments outlined above. Thus, we see the solution and the fact that the U.S. is in a position to take it.

To facilitate this, EFTA has proposed that all internal tariff cuts made by the two groups on July 1 (when the "Six" make their second 10% cut, and the "Seven" their first 20% cut) be extended to all GATT members on a MFN basis, temporarily for 18 months, to give time to reach a settlement.

However, this suggestion, wise as it is, is unlikely to be accepted. First, it seems the French regard it as a dangerous step towards weakening the cohesion of the "Six." Second, the Patronat (association of French employers), were only persuaded to accept the EEC after great pressure and they say "One thing at a time." Third, the U.S. has now endorsed the "Six" proposal to "speed up" its internal tariff cuts and make a 20% cut on July 1 instead of 10% (although this will probably be countered by the "Seven" making a 30% cut next year).

The U.S. reasons are, apparently, its sympathy with the political aims of the Common Market and the fact that the proposal also included a reduction of 20% in the Common External Tariff. This is thought to outweigh, in the long term, the short run increase in discrimination which the speeding up will bring about. EFTA, particularly the United Kingdom, will suffer most from the speeding up of the introduction of the Common Tariff, for Benelux and West Germany are large U.K. markets. British-German trade is now at record levels, getting back to the pre-1914 state of affairs when each country was the other's best market, and while large markets they have the lowest tariffs of EEC members and will be required to raise their tariffs to meet the average level of the EEC common tariff. The whole thing constitutes, in fact, a reversal—a retrogressive step—of the world-wide progress towards

multilateralism and freer trade taken since the war. However, the attitude of the U.S. is not yet finally determined.

The EFTA and the Future

Nobody is disputing the political aims of the "Six" or their right to pursue them, but the purpose would be defeated if it were to result in a backward movement of the economy with adverse and uncertain effects on the rest of the Free World. As no less a person than Sir David Eccles, president of the British Board of Trade, has pointed out, it is an illusion to suppose that Europe can remain divided in trade and united in all else; and the dangerous consequences of an economic division do not seem to be sufficiently realized.

Insofar as the major vehicle, which men have used over the past 500 years to achieve their objectives, namely the National State, is out of date, EFTA believes closer cooperation must take its place, but on the basis of consent, not coercion, and maintaining flexibility and decentralization to deal with the vast and unforeseeable consequences which will ensue, i.e., interdependence, not an outmoded Collectivism.

As we have seen the U.S. will not win the Cold War unless its policies achieve a higher living standard for the whole world within a framework of individual freedom. If Europe is divided, its components will inevitably turn more to the Communist bloc for supplies and markets. The U.S., as stated, must not allow short-term considerations to stand in the way of these paramount tasks, but there is a danger that it will.

Fortunately, as is to be expected, the issues are clearly understood in Washington. As a result, Douglas Dillon, Under Secretary of State, in accordance with the high tradition of American foreign economic policy, during his recent visit to Paris, took the large view, the nearly inevitable view of a country which is itself a Continent. In an initiative which, in the opinion of some, may be as historically important, as the Marshall Plan, Mr. Dillon told the

Conference that the U.S. (subject to the approval of Congress) would join with the 18 members of OEEC and Canada in "full and active membership" of a new body to cooperate in exploiting the new opportunities and meeting the new challenges facing the Free World.

The mechanism thus set up—in effect a revived OEEC, which had become a little tired after all its good work—would examine as "a matter of priority" the problem of the reconciliation of the EFTA and EEC. The U.S. will work towards a solution of this problem and will oppose no solution that is in accordance with the GATT. The GATT specifically allows Free Trade Areas of the wider type sought by EFTA. This momentum must go on.

As a matter of fact there are powerful automatic forces working towards closer economic integration, particularly the industrial need to plan on a larger market scale than that offered by the two groups individually. The automobile industry is a good example—it in fact needs to plan on a world scale. Most other large scale industries are in the same position.

British-German trade is, as stated, at a record high, but Britain and Germany are now on opposite sides of the fence. German industry, led by its Federation and Dr. Ludwig Erhard, Germany's Federal Minister of Economics, have come out strongly for the wider association. The vital German interests, in the wider association, can be seen from one glance at German trading figures: 50% of its trading surplus comes from EFTA. Exports to EFTA are \$2.75 billions and imports from \$1.85 billion. Whatever the future may hold, of one thing every German businessman is convinced; he needs a liberal trading world. Furthermore, Germany is now beginning to suffer from inflation, and only increased imports can solve the problem.

Behind-the-Scenes Planning

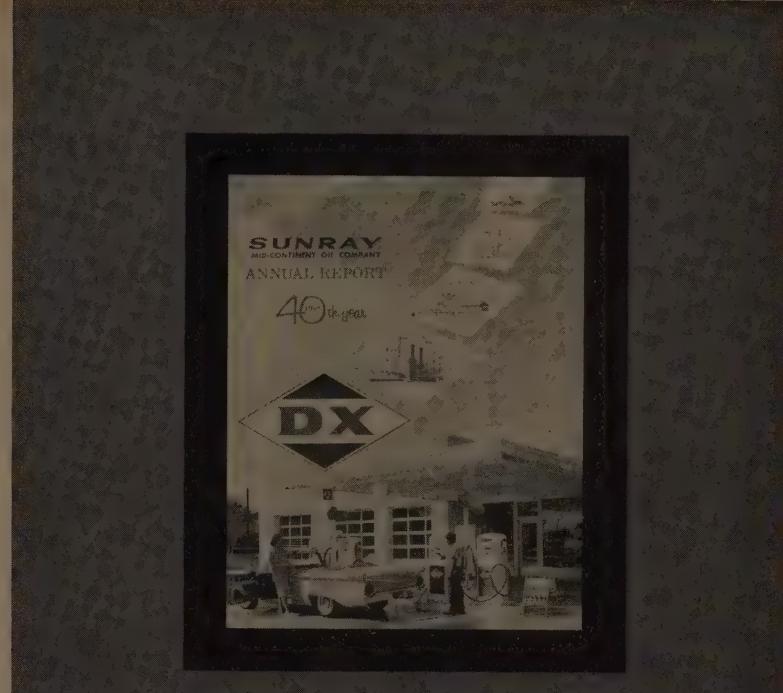
The French balance of payments has recovered, probably permanently, even without Sahara oil, as her great post-war development pro-

In the belief that the Common Market countries have a natural appeal to the African states (largely because the Common Market is such a large importer), the six-nation bloc is planning a friendly political and commercial approach to the new African governments. For instance, each year the six-nation bloc imports more than \$9 billion worth of goods from non-industrial countries. This is an objective well understood by the "Outer Seven."

grams begin to bear fruit. The Patronat (French employers) need no longer be so anxious. Indeed if they are too timid, and attempt to avoid economic involvement with the rest of the world, they, and France, will once more be left at the post. The Italians have recently complained that the EEC was taking on too openly an anti-British tone, while the "low-tariff club members" (that is, Benelux which depends so much on cheap imports) have always disliked the illiberal economic provisions of EEC. Again, in Brussels it is beginning to be generally realized that the vast bureaucracy being built up there is an anachronism and out-of-tune with the fundamental aims of free-enterprise democracy.

Additionally, a lot of work is going on behind the scenes through the Integration Committee of the Council of European Industrial Federations because there is a firm will in most countries (at least as far as industry is concerned) to establish new contacts. This work is mostly being done by the Council of the Federation of European Trade Associations under Swedish chairmanship. The British Prime Minister, in his recent visit to France, did his best to satisfy the French, and while over here to enlist American support.

Finally, in addition to its proposal for extending tariffs cuts to all GATT members, EFTA is plugging the fundamental idea that any regional arrangements for closer economic association (frequently nothing more than the compounding of deficits) must be consistent with efforts to expand the world economy. This is the resolution recently



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In the preface to Sunray's 1959 Annual Report, Chairman C. H. Wright and President Paul E. Taliaferro say, ". . . We recognize that wealth is created in our industry basically through exploration, and our long range plans emphasize a program of expanding oil and gas production, together with the necessary facilities to market these resources." As evidence of the soundness of this policy, consider these financial highlights from the 1959 Annual Report:

	1959	1958
Shareholders' Equity	\$461,264,383	\$435,285,029
Gross Operating Income	\$450,989,084	\$372,285,346
Net Income	\$ 43,814,599	\$ 40,663,623
Capital and Exploratory Expense	\$ 67,660,624	\$ 52,458,038
Dividends paid in cash		
Preferred Shares	\$ 3,451,371	\$ 3,519,232
Common Shares	\$ 23,283,559	\$ 22,907,501
Per Share of Common Stock:		
Earned on Net Income	\$ 2.25	\$ 2.14
Dividends Paid	\$ 1.32	\$ 1.32

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expressed by the American National Foreign Trade Council. Closer political association, they say, does not exclude a looser form of economic association. Do not force people to go fast in an area where they have to go slow; conversely we do not wish to force others to go slow where they need not. A time table can be arranged to suit everyone; e.g., France could be allowed longer to integrate into the broader Free Trade Area than other members, in the same way that Portugal has been allowed in the smaller.

It is better to face, rather than deny, the danger of a permanent split into three competing groups—the EFTA, the EEC and the U.S.—and the nefarious consequences to the whole Free World which would result. If Franco-German rapprochement is to be bought at the expense of a deeper division of Europe (a revival of, for example, 500 years of Anglo-French enmity or ancient threats to Swiss independence—shades of William Tell!) the price is too high. Britain has done a good deal for Europe and deserves something better than the present open hostility.

As we go to press the expected first step towards reconciliation has been taken with the announcement, by the West German government, that it has appointed a committee of four ministers to examine the proposal for speeding-up the Common Market (i.e., the cutting of the internal tariffs by 20%, and the raising of the Benelux and German tariffs up to the level of the Common Tariff). Moreover, EFTA has proposed to extend its tariff cuts on July 1 to all GATT members, provided the "Six" reciprocate. In effect, this means that the July 1 deadline for the speed-up, will not be met.

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St. Louis Society Schedules Regional Financial Convention

The 1960 Regional Analyst Convention—conducted by The St. Louis Society of Financial Analysts—is scheduled for Oct. 16-18, according to a press-time bulletin from Lillian B. Green, publicity chairman. Miss Green is also executive assistant to the chairman of the board of the Granite City Steel Co.

Forums and field trips will highlight this convention. Forums will cover chemical and drugs; construction; electrical and electronics; electric power; food and beverage; metals; natural gas; railroads; retail trade and shoes.

Field trips will include aircraft; animal feed; automotive assembly; automotive stamping; brewery; chemicals; coal; electrical and electronics; glass manufacturing and steel.

Carl L. A. Beckers, vice president, St. Louis Union Trust Co., is general chairman. Other convention officials are: George R. Hays, Laclede Gas Co., and David H. Morey, Boatmen's National Bank, co-chairmen; J. Marion Engler, St. Louis Union Trust Co., assistant to chairman; Kenneth Penzler, Mercantile Trust Co., forum chairman; Frank X. Keaney, G. H. Walter & Co., field trip chairman; James J. O'Brien, Counselors Research Corp., arrangements chairman; Albert W. Winter, Mercantile Trust Co., registration chairman; Jefferson L. Miller, First National Bank, ladies program chairman; and Miss Green, aforementioned publicity chairman.

Among the scheduled speakers are: J. Wesley McAfee, president, Union Electric Co.; Donald S. Kennedy, president, Oklahoma Gas and Electric Co.; Edgar H. Dixon, president, Middle South Utilities, Inc.; T. G. Redman, comptroller, Swift & Co.; Joseph J. Griesedieck, president, Falstaff Brewing Corp.; and G. E. Ellis, vice president, Pet Milk Co.

Also, Henry H. Rand, president, International Shoe Co.; Joseph S. Stern, board chairman, The United States Shoe Corp.; Robert C. Erb, president, Melville Shoe Corp.; Dr. Nat C. Robertson, vice president, Spencer Chemical Co.; M. E. Young, vice president, Monsanto Chemical Co.; Gavin K.

MacBain, treasurer, Bristol-Myers Co.; H. Brainard Fancher, general manager, Semiconductor Products Dept., General Electric Co.; Donald C. Power, board chairman, General Telephone & Electronics Corp.; and W. R. Persons, president, The Emerson Electric Manufacturing Co.

Also, Morton D. May, president, The May Department Stores Co.; Irving Edison, president, Edison Brothers Stores, Inc.; Crowds Baker, vice president-comptroller, Sears Roebuck & Co.; Walter E. Hoadley, Jr., treasurer, Armstrong Cork Co.; Howard A. Coleman, vice president and general sales manager, Missouri Portland Cement Co.; and W. H. Franklin, financial vice president, Caterpillar Tractor Co.

Also, Frederick J. Close, vice president and general sales manager, Aluminum Company of America; Andrew Fletcher, board chairman, St. Joseph Lead Co.; Ray E. Estes, Jr., vice president, United States Steel Corp.; Richard T. Lyons, president, Union Oil and Gas Co. of Louisiana; Glenn W. Clark, president, Mississippi River Fuel Corp.; and Robert W. Otto, board chairman, Laclede Gas Co.

(Editor's note: This convention will be covered by our Managing Editor, and a summarized version of the St. Louis proceedings will be published in our November-December issue).

Press. A first-class presentation of the orthodox protectionist case.

3. Common Sense about the Common Market by E. Strauss. Rinehart & Co. The Common Market depicted as a precarious balance between France and Germany.

4. Foreign Affairs (October 1959). Economic Disintegration in Europe by Agostino Soldati. An important contribution to understanding the political aspects of the matter.

5. Growth and Stagnation in the European Economy by Prof. I. Svennilson. Pub. United Nations.

6.* Economic Aspects in the Pax Britannica by Prof. A. H. Imlah. Pub. Harvard Univ. Press.

7.* American Economic Review—Papers and Proceedings 1943. Article entitled "The Network of International Trade" by Mr. Folke Hilgerdt.

8.* The Rise and Fall of the Gold Standard by Sir Charles Morgan-Webb. Macmillan & Co. London 1934.

9. The Common Market by J. Deniau. (Pall Mall Press). An able rationalization of the collectivist view.

10. Economic Integration and the American Example by S. Dell. Economic Journal, March 1959. An excellent discussion of some of the dangers of "integration."

*Three classics on the wider aspects of the matter.

Neighbors for ninety years

1870-1960



The past ninety years have brought great progress for Ohio and over this period a friendly relationship has been established between the people of Ohio and the people of Sohio which has been profitable to all.

Through emphasis on friendly efficient service and high quality products, Sohio has maintained a strong position in this excellent growing marketing area. One out of every three Ohio motorists regularly looks to the Company for his gasoline and oil requirements.

As the Ohio market has grown, so also has Sohio grown. The original \$1 million of capitalization in 1870 has become more than \$336 million today, while the number of stockholders has grown from the original ten to 39,570 at the close of 1959.

The Company's business now encompasses exploration half way around the world, the drilling of oil wells and building of pipe lines, and the manufacturing and marketing of thousands of petroleum and petrochemical products for the daily use of its many customers.

HIGHLIGHTS

	1959	1958
Net sales and operating revenue	\$368,087,538	\$358,000,924
Earnings	\$ 25,060,769	\$ 24,044,463
Earnings per share of common stock	\$5.02	\$4.82
Dividends per share of common stock	\$2.50	\$2.50
Capital expenditures	\$ 40,434,599	\$ 40,311,716
Net production of crude oil and other liquid hydrocarbons—barrels	14,213,465	12,887,050
Petroleum products sold—barrels	47,549,929	44,582,547
Crude oil processed at refineries—barrels	50,729,890	46,763,435

for a copy of Sohio's 1959 Annual Report, write to the Secretary, Room 1416:

THE STANDARD OIL COMPANY
(AN OHIO CORPORATION)

Midland Building • Cleveland 15, Ohio

Marquette reports for 1959

Highlights of our operations for the year ended December 31, 1959, compared with the previous year, are given on this page from our latest Annual Report.



Copies of our complete Report for 1959 are available upon request. Write to Director of Public Relations.

Highlights from the Report

CEMENT SALES
Up 7.8% over '58 to \$55,849,549. Gain came solely from 7.2% more volume.

NET INCOME
Up 8.6% over '58 to \$9,490,897. Further improvements in operating efficiency and more volume account for increase.

COMMON SHARE EARNINGS
Up 29¢ a share over '58 to \$3.55.

COMMON DIVIDENDS

\$1.70 a share in '59—13.3% more than in '58. Current quarterly rate is 45¢, indicating new annual rate of \$1.80—5.9% more than in '59.

DEPLETION ALLOWANCES

Only normal allowances were used. If court approved, higher allowances had been applied, net income would have been \$2,424,790 more—92¢ a share more.

TAX REFUND CLAIMS

Progress in collecting claims based on court approved, higher depletion allowances is halted pending Supreme Court action in Cannelton case. Our claims, based on finished product values less packages, aggregate \$16,511,994. Sum includes taxes withheld for '57 through '59.

EXCESS CAPACITY

Industry capacity will climb close to 440 million barrels by year end, over 70 million barrels more than needed four years from now.

1960 PROSPECTS

Expected reductions in highway and residential building probably will depress cement use slightly, notwithstanding increases in most other types of construction.

Marquette Cement

One of America's
major cement producers

MANUFACTURING COMPANY

Executive offices: 20 North Wacker Drive, Chicago 6, Illinois

Operating ten cement producing plants in Illinois, Iowa, Ohio, Missouri, Tennessee, Mississippi, Georgia and Wisconsin.

Annual capacity
16,970,000 Barrels

HIGH FINANCE IN RUBBER

by Frederick R. Hoisington

CAN YOU IMAGINE HIGHWAY TRANSPORTATION without pneumatic rubber tires? Those of us born in the 19th Century can remember when freight was borne on iron wheels (whether on the rails or on the road) and passengers rode on solid rubber tires. Our grandfathers told us that in their youth they didn't even have solid rubber to cushion the jolts. However, it wasn't so bad with travel speed limited to a horse's pace and with good springs. But the automobile obviously never could have developed into the present universal means of fast, comfortable and economical land transportation without the pneumatic tire.

Strangely enough, rubber was known centuries before automobiles or even railroads and steamships. Columbus is said to have seen the natives of Haiti playing with a bouncing ball in 1495, or 1496, and later explorers of Mayan ruins in Yucatan and Honduras found rubber relics believed to indicate the use of rubber as far back as the 11th Century.

Called "caucho" (probably from the Peruvian and Ecuadorian Indian word for the tree or its product), in Spanish and Portuguese America, and "caoutchouc" among the French, the substance became known as "rubber" or "Indian rubber" (later India rubber") in the English speaking world when the English chemist Joseph Priestly, about 1770, found it erased pencil marks. Early in the 19th Century rubber bottles and rubber solid shoes reached the U. S. market from Brazil, but met little acceptance because they became sticky in summer heat.

The first rubber patent is believed to have been issued to Samuel Peal in England, in 1791, for waterproofing fabrics. About 1823 another patent for waterproof fabric was issued to Charles Mackintosh of Scotland. In 1813 J. F. Hummel, in Philadelphia, received the first U. S. rubber patent for rubber "varnish" to waterproof shoes, and by 1833 rubber clothing, life preservers and hose were manufactured in New England. All these ventures met with indifferent success until Charles Goodyear, a New England inventor, "cured" rubber by the addition of sulphur with heat treatment.

Frederick R. Hoisington is associated with Hayden, Stone & Co. Prior to this he was a partner for 13 years with Corn, Schwarz & Co., commodity futures merchants. A member of the Association of Customers Brokers, the New York Cotton Exchange, and The New York Society of Security Analysts, Mr. Hoisington has also served as a principal economist in several governmental agencies in Washington, D. C. During World War II, Mr. Hoisington worked for the British Purchasing Commission. He was also comptroller of the Tennessee Powder Co. and the New Jersey Powder Co.

In 1844 Goodyear received a patent for his process, now called vulcanization, and in 1852 Daniel Webster won a great patent trial for him. Goodyear assigned his original patent to the Samuel J. Lewis Co., in Naugatuck, Conn., and became a director. That company later joined with several other businesses to form U. S. Rubber Co.

PRODUCTION

Although rubber has been produced from dozens of different plants (actually including the well-known ornamental hot-house "rubber tree," *Ficus elastica*), practically all now comes from *Hevea brasiliensis*, a tree reaching up to 60 ft. in height, with a trunk eight feet in circumference. This tree, when tapped, yields a juice (not the regular sap which nourishes the tree itself) from just under the bark, called rubber milk or latex. Latex is an emulsion consisting of about 55% water, 41% rubber and 4% proteids, sugar, ash etc. The rubber is extracted from the latex by coagulation at the plantation. The slabs of coagulated latex are then squeezed between rollers to make either air-dried yellow crepe rubber, or thin sheets containing ridges, hung in a smoke house to make brown "ribbed smoked sheets." The latter is the typical crude natural rubber of commerce, and is the form tenderable on futures contracts.

Until the late 19th Century all commercial rubber was collected from trees growing wild in the jungles of tropical America, mostly the Amazon valley of Brazil, whence it was shipped through the port of Para. In 1876 Sir Henry Wickham collected 7,000 *Hevea brasiliensis* seeds from the upper Amazon jungle and planted them in the Kew Botanic Gardens in London. Seedlings from these seeds were shipped from London to Ceylon, and later seeds from Ceylon were planted in Malaya and elsewhere in southeast Asia and Africa. Oddly enough, southeast Asia, originally the leading source of coffee, is now relatively unimportant as a coffee producer, but accounts for 92% of the world's rubber. Brazil, on the contrary, originally producing nearly all the rubber, is now a small factor in rubber (1% of world—see *Table III*) but is much the largest coffee producer.

It took six to ten years for Sir Henry's seeds to develop into mature trees, then the seeds of these trees had to be planted on a commercial scale. Much trial and error was needed before the best methods of plantation cultivation could be developed, and it wasn't until the advent of the automobile that important capital could be interested. Meanwhile, as shown by *Table I*, even after Henry Ford showed the way to mass produc-

Table I
WORLD POSITION OF NATURAL RUBBER SINCE 1900

Year	PRODUCTION ★			CONSUMPTION ★★			STOCKS			
	S.E. ASIA	REST	TOTAL	U.S.A.	REST	TOTAL	Producing Countries	Consuming Countries	Afloat	Total
1900	500	44,500	45,000	20,500	32,000	52,500	..	..	..	..
1901	500	44,500	45,000	23,000	29,500	52,500	..	..	..	..
1902	500	42,000	42,500	21,500	28,500	50,000	..	..	..	..
1903	1,000	49,000	50,000	23,500	34,000	57,500	..	..	..	..
1904	2,000	50,500	52,500	26,000	39,000	65,000	..	..	..	..
1905	2,500	52,900	55,000	27,000	43,000	70,000	..	..	..	..
1906	3,000	59,500	62,500	29,000	46,000	75,000	..	..	..	..
1907	7,500	67,500	75,000	29,000	48,500	77,500	..	..	..	..
1908	5,000	65,000	70,000	32,500	42,500	75,000	..	..	..	..
1909	5,500	72,000	77,500	40,000	47,500	87,500	..	..	..	..
1910	11,000	84,000	95,000	42,500	57,500	100,000	..	..	..	..
1911	17,500	77,500	95,000	42,000	58,000	100,000	..	..	..	..
1912	33,500	81,500	115,000	56,000	64,000	120,000	..	..	..	..
1913	53,500	66,500	120,000	52,000	78,000	130,000	..	..	..	..
1914	74,500	48,000	122,500	62,500	57,500	120,000	..	..	..	..
1915	116,500	53,500	170,000	99,000	61,000	160,000	..	..	..	..
1916	162,000	53,000	215,000	118,000	67,000	185,000	..	..	..	..
1917	221,500	56,000	277,500	157,500	65,000	222,500	..	..	..	..
1918	181,000	39,000	220,000	160,000	75,000	235,000	..	..	..	..
1919	349,000	51,000	400,000	215,000	97,500	312,500	..	..	37,500	..
1920	305,000	37,500	342,500	206,000	91,500	297,500	..	..	37,500	..
1921	277,500	25,000	302,500	178,000	99,500	277,500	..	..	32,500	..
1922	379,500	23,000	402,500	301,500	103,500	405,000	..	..	45,000	..
1923	379,500	25,500	405,000	319,500	125,500	445,000	..	..	50,000	..
1924	392,000	30,500	422,500	329,000	136,000	465,000	..	..	52,500	..
1925	487,500	40,000	527,500	388,500	164,000	552,500	..	..	65,000	..
1926	582,000	43,000	625,000	366,500	176,000	542,500	..	..	77,500	..
1927	564,000	46,000	610,000	373,000	222,000	595,000	..	..	67,500	..
1928	622,500	32,500	655,000	437,000	248,000	685,000	..	..	117,500	..
1929	838,500	31,500	870,000	467,500	337,500	805,000	..	..	95,000	..
1930	804,000	21,000	825,000	376,000	334,000	710,000	..	..	87,500	..
1931	784,500	18,000	802,500	355,500	327,000	682,500	..	..	85,000	..
1932	700,500	9,500	710,000	337,000	353,000	690,000	..	..	80,000	..
1933	838,500	14,000	852,500	412,500	410,000	822,500	..	..	117,500	..
1934	1,018,500	14,000	1,032,500	462,500	457,500	920,000	..	..	125,000	..
1935	810,000	20,000	830,000	491,500	449,500	940,000	..	..	85,000	..
1936	839,000	28,500	867,500	575,000	470,000	1,045,000	..	..	105,000	..
1937	1,174,500	35,500	1,210,000	543,500	546,500	1,090,000	160,000	450,000	135,000	745,000
1938	877,000	33,000	910,000	437,000	518,000	955,000	170,000	447,500	90,000	707,500
1939	963,000	37,000	1,000,000	592,000	513,000	1,105,000	155,000	277,500	150,000	582,500
1940	1,372,500	45,000	1,417,500	648,500	461,500	1,110,000	160,000	475,000	245,000	880,000
1941	1,556,000	44,000	1,600,000	775,000	465,000	1,240,000	230,000	750,000	250,000	1,230,000
1942	573,500	66,300	640,000	377,000	388,000	765,000	315,000	630,000	75,000	1,020,000
1943	377,500	87,500	465,000	317,500	297,500	615,000	365,000	380,000	75,000	820,000
1944	254,000	106,000	360,000	144,000	243,500	387,500	405,000	260,000	50,000	715,000
1945	147,500	102,500	250,000	105,500	157,000	262,500	375,000	235,000	50,000	660,000
1946	750,000	87,500	837,500	277,500	277,500	555,000	237,500	492,500	210,000	940,000
1947	1,185,000	75,000	1,260,000	562,500	547,500	1,110,000	230,000	375,000	240,000	845,000
1948	1,452,500	72,500	1,525,000	627,500	795,000	1,422,500	235,000	300,000	235,000	770,000
1949	1,416,000	74,000	1,490,000	574,500	863,000	1,437,500	237,500	255,000	227,500	720,000
1950	1,777,500	82,500	1,860,000	720,500	1,002,000	1,722,500	245,000	202,500	275,000	722,500
1951	1,780,000	105,000	1,885,000	455,500	1,089,500	1,515,000	242,500	230,000	255,000	727,500
1952	1,682,500	107,500	1,790,000	454,000	1,016,000	1,470,000	250,000	250,000	222,500	722,500
1953	1,615,000	112,500	1,727,500	553,500	1,101,500	1,655,000	250,000	262,500	192,500	705,000
1954	1,697,500	112,500	1,810,000	596,500	1,178,500	1,775,000	252,500	240,000	227,500	720,000
1955	1,792,500	125,000	1,917,500	635,000	1,245,000	1,880,000	260,000	255,000	227,500	732,500
1956	1,745,000	142,500	1,887,500	562,000	1,340,500	1,902,500	270,000	245,000	212,500	727,500
1957	1,755,000	147,500	1,902,500	539,000	1,351,000	1,890,000	272,500	257,500	222,500	752,500
1958	1,807,500	150,000	1,957,500	485,000	1,495,000	1,980,000	292,500	217,500	225,000	735,000
1959	1,895,000	165,000	2,060,000	555,000	1,550,000	2,105,000	275,000	202,500	225,000	702,500

Notes:-

Production, consumption and stock figures are in long tons and include latex (dry rubber content).

★ — Net exports up to and including 1936.

★★— Net imports up to and including 1936 except for U.S.A. for which consumption since 1917 and U.K., for which net imports corrected for warehouse stock changes from 1914 to 1933, and consumption thereafter.

tion of cars with his Model "T" assembly line, most of the rubber was still gathered wild in the new world—chiefly in the Amazon Valley.

MARKET HISTORY

The fact that automobile, and consequently tire, production, expanded faster than plantation rubber output, naturally forced market prices up from 50¢ to 60¢ a pound at the turn of the century to over a dollar a pound in London in 1906, and to over \$2 in 1910 (see *Table II*). A great boom in rubber plantation securities ensued and capital, mainly British, poured into Malaya, Ceylon and the East Indies.

Before the trees planted in Southeast Asia in 1906 to 1910 matured the Amazon natives tapped every tree they could find. Their methods were crude and wasteful; anything to "mine" the rubber and rush it to market. Trees died prematurely, and Brazil never again attained the 1910 level of output. But, by 1912, the Malayan trees, planted under the stimulus of the 1906 dollar rubber market, began to be tapped, resulting in almost double the output of 1911 (see *Table I*). In 1914 Southeast Asia, for the first time, produced more than half the world's rubber, and 1916 and 1917 saw further sharp price gains with the tapping of the trees planted at the \$2 peak of 1910.

No one knows how accurate these early production and consumption figures of *Table I* were. Production is represented by net exports up to 1936, and all consumption figures before World War I are net imports. The importing countries probably had more complete foreign trade records than the exporting countries in those early days of native wild rubber, which presumably accounts for the apparent excess of consumption over production in each year from 1900 to 1913 inclusive. Could such under-reporting of output and shipments be recurring nowadays in case of the leading producing country, Indonesia?

After World War I, scientific plantation methods enabled growers easily to keep up with the rapid growth of demand paced by the U. S. automobile industry, and at steadily lower costs per pound. Rubber growing was profitable but the long growth cycle posed a problem. Already in 1919, production greatly outran consumption, and the business depression of 1920-21 caught the rubber producers in a bad spot. The price collapsed in a year, from 43¢ to a record low of 16¢, below the cost of production for all but the most efficient estates. Although the market recovered in 1922 and 1923, the gains were too slow to suit the then leading producing interests. Following the example of the Brazilian coffee trade, they organized a valorization scheme called the Stevenson Act. Malayan production was curtailed enough from 1923 to 1925 to force an artificial scarcity and run the price up to an average of 72¢ in 1925 (Over \$1 at the peak). But, as usually happens with such schemes, non-participants (mostly in the Dutch East Indies in this case) stepped up offerings to take advantage of the bonanza market and eventually the scheme broke down. Stocks piled up and the price fell to 20¢ in 1929. Then, the Great Depression of the

Table II

Rubber

Yearly Average Price No. 1 RSS
(U. S. cents per pound)

Year	N. Y.	Natural London	Singapore	Synthetic GRS. N. Y.
1900	57.92	60.8		
1901	51.00	54.8		
1902	49.47	54.8		
1903	63.06	60.8		
1904	70.75	66.9		
1905	75.63	73.0		
1906	78.62	143.0		
1907	72.56	112.6		
1908	58.59	107.0		
1909	84.35	172.4		
1910	102.84	212.9		
1911	82.95	132.8		
1912	80.37	115.6		
1913	65.38	73.1		
1914	49.03	56.2		
1915	49.67	59.4		
1916	58.85	68.0		
1917	57.18	66.9		
1918	44.84	53.0		
1919	40.17	45.6		
1920	42.79	34.4		
1921	16.35	15.4		
1922	17.34	17.2		
1923	29.53	29.2		
1924	26.07	25.5		
1925	72.46	70.5		
1926	49.36	48.1	45.3	
1927	37.81	37.3	36.1	
1928	22.33	21.8	20.7	
1929	20.48	20.7	19.4	
1930	10.24	12.0	10.7	
1931	6.12	6.6	5.2	
1932	3.43	3.4	2.8	
1933	5.90	5.7	5.0	
1934	12.94	13.1	12.2	
1935	12.32	12.2	11.6	
1936	16.45	16.1	15.7	
1937	19.37	19.6	18.6	
1938	14.56	14.7	13.7	
1939	17.47	16.6	16.0	
1940	19.90	20.3	17.6	
1941	22.11	23.4	18.2	
1942	22.50	23.1		50
1943	22.50	30.3		26
1944	22.50	30.3		18.50
1945	22.50	30.3		18.50
1946	22.50	28.3		18.50
1947	20.97	20.7		18.50
1948	22.01	21.7		18.50
1949	17.56	18.1	16.4	18.50
1950	41.10	38.8	35.5	19
1951	59.07	59.3	55.7	25
1952	38.57	33.1	31.3	23.5
1953	24.23	23.2	22.0	23
1954	23.64	23.5	22.0	23
1955	39.14	39.2	37.2	23
1956	34.17	33.4	31.5	23.8
1957	31.15	30.5	28.9	23.9
1958	28.07	27.4	26.3	23.9
1959	36.4	35.1	33.3	23.9

Note: New York prices to 1921 are average import prices. London prices to 1906 are average import prices.

Table III
PRODUCTION OF NATURAL RUBBER IN PRINCIPAL TERRITORIES

	Malaya*		Indonesia		Ceylon	Viet-Nam	Cambodia	Thailand	India	Sarawak	Other Asia & Oceania	Brazil	Other Latin America	TOTAL (see foot-note **)			
	Estates	Smallh.	Total	Estates	Smallh.	Total											
1948	294,561	698,189	1,011,743	330,606	432,349	95,000	43,935	95,913	15,424	39,680	35,500	41,500	20,158	9,000	1,525,000		
1949	270,688	671,503	931,181	263,851	169,145	89,500	43,010	94,234	15,587	31,461	44,760	21,318	6,000	1,450,000			
1950	276,745	317,345	594,090	175,127	134,545	696,477	113,500	48,482	112,234	15,592	55,615	47,750	19,492	7,500	1,860,000		
1951	276,556	322,534	605,346	181,406	591,872	914,406	36,708	15,428	108,818	17,148	42,359	37,500	22,500	20,777	9,000	1,885,000	
1952	242,508	324,468	584,238	456,026	750,494	96,500	44,896	18,238	97,857	19,863	31,844	38,250	26,475	73,500	9,000	1,790,000	
1953	232,589	574,390	806,979	304,215	390,335	694,450	98,610	74,545	95,574	21,136	24,037	32,500	77,000	26,318	9,000	1,727,500	
1954	241,006	586,480	823,507	460,861	744,368	93,935	54,056	23,968	116,701	21,493	34,569	34,500	84,500	21,283	6,000	1,810,000	
1955	286,212	638,748	905,536	475,013	737,088	93,830	65,289	27,368	130,181	22,481	39,233	38,750	98,000	113,000	23,696	6,000	1,917,500
1956	274,381	626,075	880,456	427,683	758,984	95,389	69,122	31,576	133,554	23,444	40,726	38,750	113,000	3,500	1,887,500		
1957	268,936	637,537	908,485	421,830	684,515	98,164	68,556	31,183	132,964	23,767	40,982	3,500	23,957	6,000	1,902,500		
1958	25,423	61,215	86,638	22,472	11,525	33,997	9,853	6,936	3,107	9,094	2,639	2,110	3,500	12,500	3,213	500	170,000
Jan.	28,775	22,858	51,633	20,067	8,650	28,717	6,585	1,589	970	11,776	951	8,287	3,250	9,250	2,070	500	145,000
Feb.	20,255	48,663	19,787	27,492	47,279	6,938	1,214	675	16,230	1,366	2,940	3,500	9,250	3,074	500	147,500	
Mar.																	
April	18,280	44,962	16,701	20,074	40,775	9,763	4,379	1,534	9,622	1,590	2,764	3,750	8,000	2,077	600	140,000	
May	21,209	48,189	45,985	17,677	20,102	37,779	8,516	5,767	2,616	9,402	2,503	2,930	3,250	8,250	2,750	600	145,000
June	31,227	21,878	53,108	19,853	25,878	45,731	6,646	6,222	2,842	15,600	1,220	3,101	3,101	670	670	600	155,000
July	23,836	60,376	20,883	45,216	66,099	8,263	6,811	3,192	11,796	2,109	3,473	2,750	10,000	1,244	600	175,000	
Aug.	34,034	24,773	58,807	19,585	42,828	62,413	8,925	6,170	3,003	10,630	1,293	3,781	3,250	11,500	1,337	500	172,500
Sept.	23,593	57,355	19,364	38,295	57,659	8,021	5,933	2,976	13,530	2,526	4,017	2,500	10,500	1,717	500	167,500	
Oct.	23,693	58,743	20,316	43,124	63,440	7,204	6,960	3,415	12,676	2,493	3,432	3,250	11,750	1,225	500	175,000	
Nov.	19,841	51,692	43,165	20,274	63,439	9,215	8,589	3,163	10,363	2,810	2,835	3,250	11,500	1,101	500	170,000	
Dec.	30,129	71,695	21,491	45,742	67,233	11,267	9,934	4,571	6,696	2,827	4,707	3,250	12,500	630	600	195,000	
Year	272,748	663,644	238,470	429,091	1,167,561	\$100,196	70,524	33,089	137,415	24,327	38,917	38,250	123,750	20,268	6,000	1,957,500	
1959	27,211	64,771	20,397	22,288	42,685	9,066	7,694	3,304	21,562	2,287	2,508	2,250	13,500	3,606	600	175,000	
Jan.	21,208	49,132	18,307	29,237	47,544	9,173	4,375	1,424	13,424	1,937	2,231	3,750	11,000	2,030	500	135,000	
Feb.	21,089	49,631	17,716	39,410	57,126	4,375	1,813	1,143	17,474	1,192	3,106	3,250	11,750	2,311	600	155,000	
Mar.																	
April	19,440	48,338	15,276	44,660	59,936	6,260	4,687	1,901	12,227	1,627	2,930	3,250	10,500	2,416	600	155,000	
May	22,372	55,893	16,265	50,598	66,863	6,447	6,393	2,741	13,139	1,849	4,268	3,250	10,250	2,226	600	172,500	
June	24,327	58,206	18,432	49,525	67,957	4,972	6,802	2,809	4,875	1,024	2,772	3,250	773	600	165,000		
July	26,863	62,544	18,745	35,546	54,291	7,175	7,072	3,228	21,476	1,909	4,655	3,250	5,487	1,952	600	180,000	
Aug.	24,897	61,426	17,860	43,542	61,402	8,926	6,549	3,187	12,990	2,024	5,464	3,500	3,203	1,007	600	177,500	
Sept.	26,111	61,809	17,014	38,826	55,840	8,197	6,450	3,140	11,942	2,456	4,831	4,000	641	641	600	170,000	
Oct.	25,482	61,455	18,048	52,956	71,004	9,630	7,352	4,567	14,532	2,989	4,450	4,000	3,750	600	600	192,500	
Nov.	24,068	59,732	44,508	62,548	44,508	12,042	4,164	4,164	4,164	2,899	2,899	3,750	3,750	600	600	190,000	
Dec.	26,737	65,312															
Year	408,444	289,805	608,219														
	716,000	91,696	74,000	33,924	17,900	23,996	45,000	42,000	138,000	29,000	7,000	7,000	2,105,000				

N.B.—All figures are in long tons and include rubber in the form of latex. Figures in italics are estimated or partly estimated.

*—Includes Singapore and the Federation of Malaya.

**—Includes 1958 to 1959. The sum of the figures shown as allowances for not yet reported rubber have been included. The total net allowance for the year 1958 was 33,000 long tons.

†—An annual allowance of 10,000 long tons, seasonally-prorated over the months, is included for production on holdings of less than 500 hectares (1,235 acres).

§—During 1959 Indonesian data are incomplete.

—has been taken as equivalent to 100% of the reported data.

IN 1959, We learned some amazing facts about...

THE BOOMING PACIFIC NORTHWEST



Did you know that the normal summer temperatures in Seattle and Portland, largest cities in the Pacific Northwest, have the delightful range of 56° to 79°? Or that their winter temperatures are in the moderate 35° to 45° range? Or that annual precipitation in these booming economic centers is under 40 inches (less than New York City or Little Rock) with little snow?

The facts about the climate of Seattle, Portland, Spokane, Tacoma, Olympia and other Pacific Northwest cities were not a surprise to us. But we didn't know that Portland's winter weather was more moderate than in Louisville, Kentucky. We didn't know that Seattle's summers were cooler than in Portland, Maine.

In fact, when El Paso Natural Gas Company began to serve this dynamic region, we learned a lot of new things about a northwest wonderland destined for an increasingly major role in America's economic future.

Washington and Oregon, and their neighboring states, are on the go. Long famed for natural resources, for scenery, for vitality, the Pacific Northwest's growing population and expanding economy are a guarantee of future prosperity.

If you're looking for a major industrial site — or a better place to build a home — visit the Pacific Northwest. You'll be sold, just as we were. And you'll want to stay.

* * * *

Not the least of the Pacific Northwest's economic assets is natural gas, furnished by El Paso Natural Gas Company. In 1959, El Paso took major steps to assure energy supplies for the Pacific Northwest, and to continue to meet the mounting energy demands of California and the Southwest, whose growth has paced the nation since World War II.

The dynamic Pacific Northwest is featured in photographs in El Paso's 1959 Annual Report. El Paso's broadened service area and plans for the future, outlined in this Annual Report, assure 11 Western states the dependable long-term gas supplies so necessary to sound and speedy economic growth.

NORMAL TEMPERATURE AND PRECIPITATION, SELECTED CITIES IN PACIFIC NORTHWEST*

	SUMMER TEMPERATURE	WINTER TEMPERATURE	ANNUAL PRECIPITATION
SEATTLE:	56°-75°	36°-45°	31.92 inches
PORLAND:	58°-79°	35°-44°	39.91 inches
SPOKANE:	57°-82°	20°-30°	14.92 inches
TACOMA:	55°-74°	34°-44°	35.20 inches
OLYMPIA:	49°-76°	31°-43°	45.74 inches

*Weather Bureau, U.S. Department of Commerce.

EL PASO NATURAL GAS COMPANY

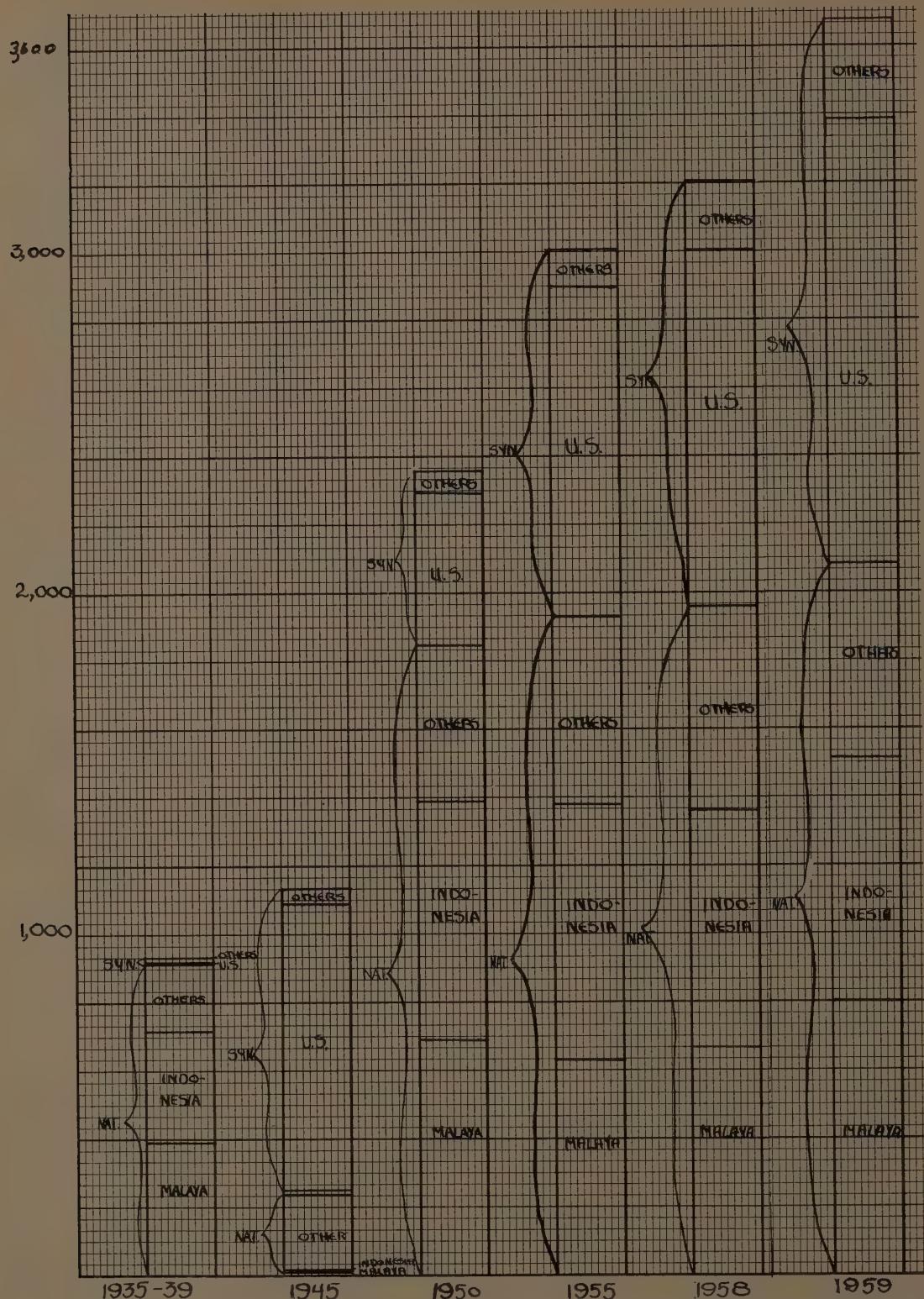
For Copies of El Paso's 1959 Annual Report,

Or Further Information

On the Pacific Northwest, Write to
El Paso Natural Gas Company, El Paso, Texas

El Paso Natural Gas Company provides natural gas to industrial customers and distribution companies in Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, Washington, West Texas and Wyoming.

Chart I—Production of Crude Rubber (thousands of long tons)



1930's really administered the *coup de grace* to the poor rubber producers, the price falling to an all-time low of 2½¢ at one point in 1932.

The Southeast Asian rubber producers met the depression manfully. Remembering how the Stevenson valorization scheme backfired—as did the coffee, copper and all other such attempts to rig the market—the estate owners concentrated on reducing the cost of production and expanding markets. Already in 1934, when most other industries were still in the depression, and we were plagued with 11.3 millions unemployed, world rubber consumption registered a new record high and gained in each of the following three years. By the time World War II cut off the principal producing areas from the consuming markets, world consumption was practically double the 1931 low. This demand was supplied (in fact, greatly oversupplied) in both 1940 and 1941 without raising the price above an average of 21¢ in those two years.

WORLD WAR II AND SYNTHETIC RUBBER

Had the Japanese not conquered Southeast Asia, presumably our great synthetic industry would have developed but slowly and mainly for special uses. Probably Malaya and the other rubber-producing areas could have continued to supply nearly all the world's demand for years, at 20¢ to 25¢ per pound, and made good money.

However, faced with the loss of 85% of our supplies of tree rubber in 1942, our tire, petroleum and chemical industries developed a synthetic rubber industry to replace the loss as shown by the charts. The U. S. now uses twice as much artificial as natural rubber, and the rest of the world, though still far behind in synthetics, is fast catching up. In the past five years, use of synthetics has multiplied by nine in the U.K. and by 4.3 in the rest of the world outside U. S., while our consumption gained two-thirds.

Rubber is now in its fourth boom since World War II. The first period, 1946 to 1948, witnessed a rapid gain in consumption of natural rubber, partly at the expense of synthetic. This was the period of making up the war-time shortages. By 1948, both production and price of natural rubber were back to the pre-war level. At that price, it did not pay to use the man-made rubber then available for most purposes, so synthetics' share of consumption fell to 41% in U. S., and to only one-tenth of that elsewhere (*Chart III*).

After a mild recession in 1949, natural rubber usage had already bounced back to a new post-war high in the early months of 1950, with a moderate price advance. Then the Korean "police action," with accompanying shipping shortage, caught the trade so unprepared that it frantically bid rubber up to over 70¢ for the five months, November 1950 through March 1951. The effect on synthetic was immediate: from 37% in the first quarter of 1950, the proportion of U. S. new rubber requirements supplied by the chemical rubber industry rose to 60% a year later, and 65% in early 1952. By this time, the natural rubber price had fallen to 51¢

Rubber Crude Consumption Percent Synthetic to Total

	U. S.	Rest of World	Total World
1945	86.8%		
1946	73.3	15.5%	62.2%
1947	49.9	10.6	36.0
1948	41.3	4.6	25.2
1949	41.8	4.0	23.8
1950	42.7	4.0	25.2
1951	62.5	4.8	34.9
1952	64.0	7.1	37.6
1953	58.6	7.4	34.5
1954	51.7	8.0	29.4
1955	58.5	11.9	36.1
1956	60.9	16.2	37.6
1957	63.2	19.7	40.0
1958	64.5	19.7	38.6
1959	65.9	23.9	42.5

Source: Computed from data shown in Tables 1 and 5.

Consumption in Tire & Tire Products Industry

	Tire Production (in thousands)	Rubber Consumed in Tire & Tire Products (tons)	Consumption Per M Tires (lbs.)
1954	89,141	777,319	8.72
1955	112,178	959,856	8.55
1956	100,401	897,017	8.93
1957	106,941	926,167	8.66
1958	96,563	860,916	8.92
1959	117,875	1,024,274	8.69
	623,099	5,445,549	8.74

and the tree product began to recover some of its markets. By the time the market subsided to the 20¢ level in early 1954, the synthetic percentage settled back to 51%.

The third rubber boom was tied in directly with the all-time record automobile production of 1955. U. S. consumption of natural rose from 596,000 tons in 1954, to 635,000 in 1955; and synthetic from 637,000 to 895,000, accompanying a doubling of the price toward the end of 1955. This time, when the price fell back to an average of 34¢ in 1956, and 31¢ in 1957, the substitution of synthetic for natural continued. After all, even 31¢ is above the price of the most widely-used synthetic types. And the further price decline to 28¢ in 1958 only checked the substitutions without regaining any of natural rubber's markets. For by this time technological improvements had opened up new markets for the man-made product on its own merits.

By the end of 1958, it was found possible to use a significant proportion of synthetic even in heavy truck tires. From 1954 to 1959, in the United States, tires and tire products increased their proportionate usage of synthetics from 50.3% to 65.4%, and all other consuming industries from 53.9% to 66.7%. Wire and cable products now use 94% synthetic and only 6% natural rubber.

By 1959, it looked as if even higher rubber usage in the U. S. would have progressively less effect on the natural rubber market, since all of the expansion occurred in synthetics. This was not the case, however, in the rest of the world. Although use of synthetic rubber

Chart II—Percent Synthetic to Total New Rubber Consumed (Yearly)

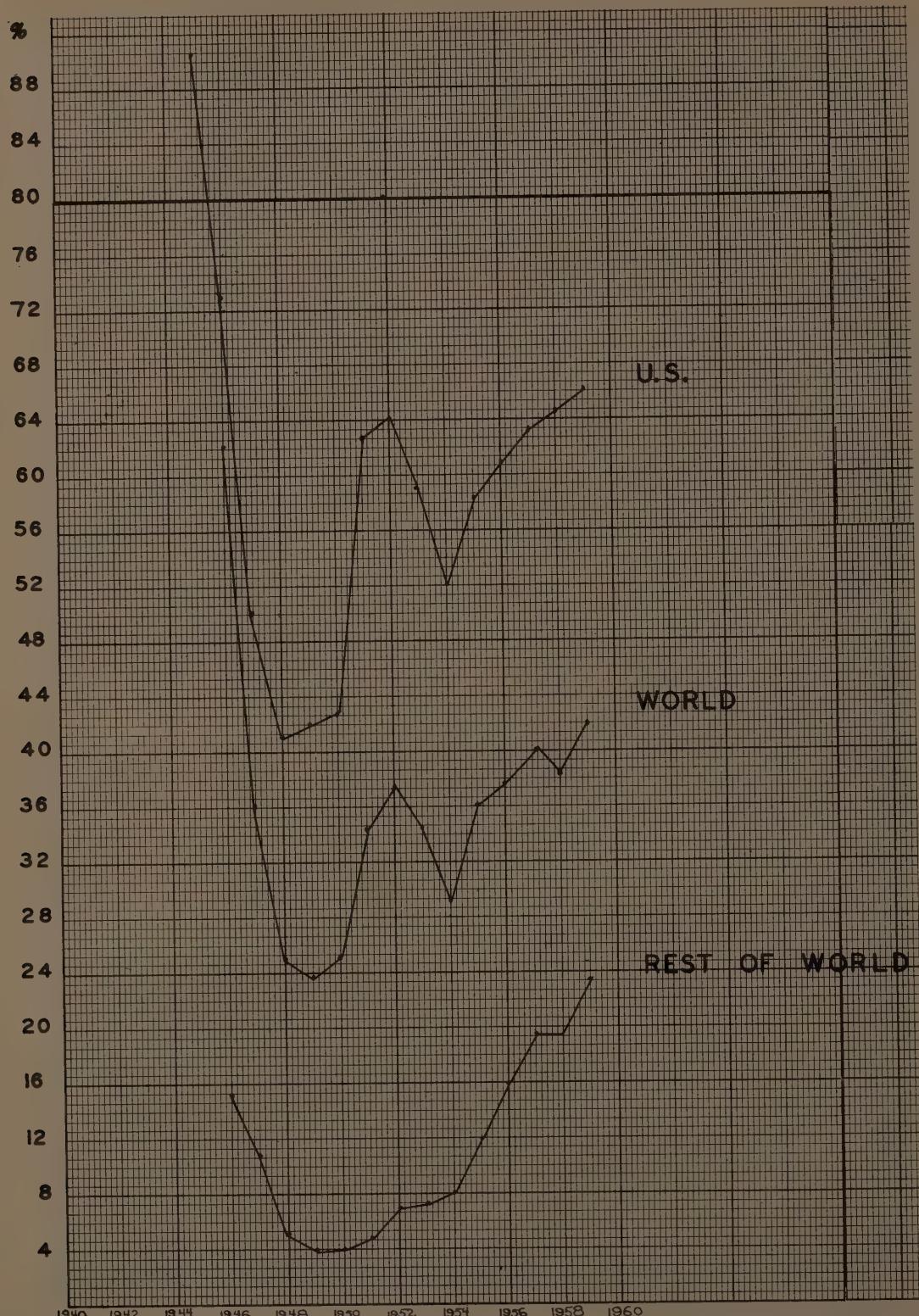


Table IV

Natural Rubber

1950-1959 Average Distribution of World Production and Consumption by Months

	Per cent in each month (a)	"Seasonal factors" (a)	Per cent in each month (a)	"Seasonal factors" (a)
	Production	Consumption	Production	Consumption
Jan.	8.4%	8.5%	101%	102%
Feb.	7.2	8.0	86	96
Mar.	7.8	8.5	94	102
Apr.	7.8	8.6	93	103
May	7.7	8.2	92	99
June	8.0	8.4	96	101
July	9.0	7.8	108	93
Aug.	8.7	7.3	105	88
Sept.	8.8	8.7	99	104
Oct.	8.9	8.9	107	107
Nov.	8.7	8.7	104	104
Dec.	9.6	8.4	115	101

(a) Strictly speaking, not seasonal alone, as computed from simple averages rather than as deviations from trend. True seasonals would be slightly higher than above indices for January, tapering down to slightly lower for December.

Since these indices reflect growth as well as seasonal influences, they may be of some use in projecting current monthly data to the extent that the growth rate of the past 10 years is assumed to continue.

is growing elsewhere more rapidly even than in the U. S., as mentioned above, it starts from so small a base that these other areas still use 76% natural, 24% synthetic (*Chart II*). Consequently, expansion of total rubber consumption (which is proceeding faster than our rate of growth) still necessitates the use of substantially more natural rubber each year, even though synthetic is supplying an increasing part of the expansion. Thus, foreign crude rubber consumption rose from 1,094,000 tons in 1952 to an estimated 2,036,000 in 1959, a gain of 86% in seven years. Of the 942,000 increase, natural accounted for about 534,000 and synthetic 408,000 (from 78,000 to 486,000 estimated). These gains are believed to be carrying forward into 1960, particularly behind the Iron and Bamboo curtains—if we can credit current trade rumors.

Leading trade authorities look for 1960 to break all records for total rubber consumption both in U. S. and outside. For natural rubber, the outlook is for an all time high in foreign consumption, and a further gain in U. S., though not to a record high here. But world natural rubber use, which established new records in both 1958 and 1959, is expected to advance again from 2,100,000 tons in 1959, to around 2,200,000 in 1960, while world production is believed headed also for a new record—but only perhaps to 2,144,000. At any rate, the Assistant Director of Resources and Production, Office of Civil and Defense Mobilization, estimates the deficit at 56,000 tons. These figures, following an apparent 45,000 ton deficit (32,000 after allowing for stockpile releases), look pretty bullish, except for one recent development.

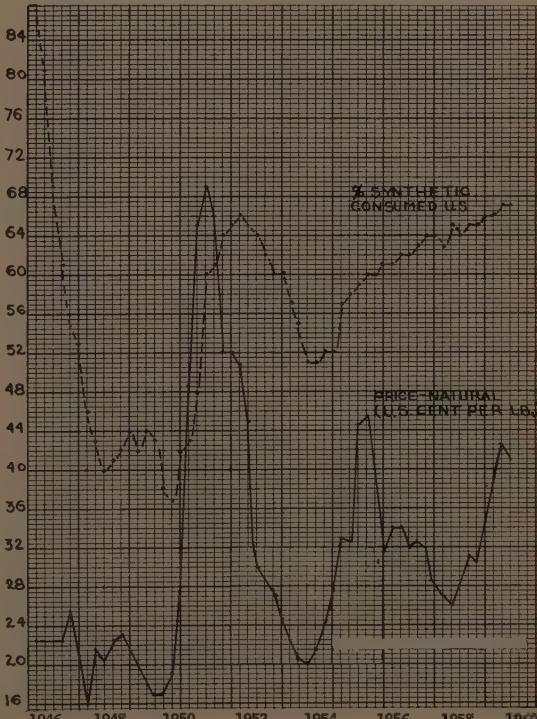
To avoid being caught again as in 1942-45 (that is, being cut off from sources of supply of strategic materials), the U. S. Government began stockpiling rubber,

among other items, as soon as it became readily available after the war.

The opportunity to build up the rubber stockpile was not long in presenting itself, as already by 1947, the market price fell below the war-time ceiling of 22.50¢. Having in mind the war just ended, the objective was a five years' supply; but the quantities actually acquired have never been officially disclosed. However, as can be computed from *Table I*, in each year from 1946 through 1955, world production exceeded consumption by more than the trifling additions to reported commercial stocks. While some of the discrepancy may represent inaccuracies in the statistics, these inaccuracies might as easily be compensating as cumulative. Accordingly, it is generally assumed that substantially the whole of the unexplained disappearance of some 1,467,000 tons, from 1946 through 1955, represents acquisitions for stockpile, mostly by the U. S. government. The British, apparently, acquired several hundred thousand tons; the Italians a small amount; and possibly one or two other governments.

There seems to have been little or no further net addition to any stockpile during 1956-1958. Purchases of new rubber were made from time-to-time, but only approximately to offset sales from stockpile of old rubber which had deteriorated, or which was thought to be on the verge of deteriorating. The U. S. government naturally took a loss on these "rotation" operations, averaging two to three cents a pound, in addition to the substantial storage and handling costs of the stockpile.

Chart III—Price of Natural Rubber and Percent Synthetic to Total U. S. Consumption (Quarterly)



What's up at Ryder?



*The new 7 story future home of Ryder System Inc. executive offices in Coconut Grove, Miami to be occupied in September

Everything...

(including the steelwork
for our new home*)

The happy fact is, that while management was absorbing its most ambitious expansion program to date, Ryder System chalked up its greatest gains in 1959: Operating revenues increased by 37% and net income from operations rose a sizeable 40%. Net income per share went from \$1.51 to \$1.80. All this, during a period of acquisition and expansion that included launching a new (but related) nationwide general leasing operation. All 1959 goals for revenues and earnings were achieved—a tribute, we believe, to continued careful “growth” planning and management.

FINANCIAL HIGHLIGHTS

	Up 1955	Up 1956	Up 1957	Up 1958	And Up! 1959
Gross Revenues	\$31,824,567	\$37,688,630	\$46,645,171	\$60,919,687	\$83,620,391
Net Income	1,281,930	1,511,530	1,504,942	2,351,941	3,289,693
Per Share	1.48	1.25	1.13	1.51	1.80
Dividends Paid	240,277	456,310	659,947	821,146	1,184,189
Depreciation	3,765,459	5,089,280	6,035,501	7,863,600	11,889,621
Shares Outstanding at Dec. 31	747,900	1,308,450	1,542,726	1,576,478	2,061,642



RYDER SYSTEM, INC.
Corporate Relations Department
P.O. Box 33-816 Miami, Florida

A copy of Ryder System's 1959 Annual Report will be sent on request

Table V
SYNTHETIC RUBBER
Production and Consumption—Thousands of Long Tons

	PRODUCTION				CONSUMPTION						
	U. S.	Canada	Others	Total	Total	U. S.	U. K.	W. Ger.	France	Canada	Others
1945	820		(a)		694						
1946	740	51	16	807	913	762	30	12	29	30	50
1947	509	42	8	559	625	560	3	8	13	29	12
1948	488	40	4	532	480	442	3	4	7	21	3
1949	394	46	0	440	450	414	2	2	8	18	6
1950	476	58	1	535	580	538	3	3	7	23	6
1951	845	62	1	908	813	759	4	5	9	26	10
1952	799	74	5	878	885	807	5	10	11	34	18
1953	848	81	7	936	873	785	5	11	13	36	23
1954	623	87	6	716	740	637	9	17	14	30	30
1955	970	104	11	1,085	1,063	895	20	25	19	40	64
1956	1,080	121	10	1,211	1,133	874	40	36	32	48	103
1957	1,118	132	13	1,263	1,258	926	57	47	50	48	130
1958	1,055	135	53	1,243	1,248	880	63	54	55	47	149
1959	1,380	101	134	1,615	1,558	1,072	79	69	66	57	est. 205
1960 forecast				2,000	2,000	1,100					
1964 (b) "				3,000	3,000	1,300					
1970 (b) "				4,400	4,400	1,500					

(a) All West Germany until 1957. Now includes Italy, U.K., France, Holland and USSR.

(b) Forecast of Rubber Manufacturers Association.

Sources: International Rubber Study Group; U. S. Department of Commerce.

Recent revolutionary changes in war technology have necessitated a re-assessment of the objectives of the stockpile. Under this revised planning, it was determined that a three year emergency period would be used instead of the former five year period, resulting in a 40% cut in estimated requirements. In fact, the reduction may be even greater by reason of improvements in synthetic, resulting in lower requirements for natural. Whatever the exact calculations, the authorities arrived at a figure of 470,000 tons as the surplus in the stockpile, and on Sept. 15, 1959, asked Congress for authority to dispose of this quantity over a period of about nine years. As of this writing, the House of Representatives has passed the bill and the Senate should act before long.

In any case, the stockpile authorities have all along had authority to sell rubber about to spoil; and this has been done regularly for several years, as mentioned above. At first, they replaced the amounts sold by new purchases; but beginning in October 1959, they offered deteriorating rubber for sale without replacing it. At about the same time, the British announced their intention to begin the orderly disposal of about 100,000 tons held by them. Deliveries during 1959 from U. S. and U. K. stockpiles, in excess of their purchases, are understood to have been 13,000 tons. For 1960, the General Service Administration has announced its intention to sell on the following scale: No sales where the price is under 30¢; 9,000 tons per quarter at 30 to 32¢; 18,000 at 32-34¢; 27,000 tons at 34-36¢; and no limit when the price is over 36¢. Since we are in the "wintering period" of low production, the market has held up well so far under their sales. It will be interesting to see how much will be sold when seasonally flush output comes on the market in July, and how the sales affect the market.

At any rate, for 1960 as a whole, it seems likely that U. S. stockpile sales alone will more or less offset the excess of consumption over production, if the official forecast of 56,000 tons is accurate. Accordingly, any further sales by U. K. and Italy would tip the balance in favor of lower prices.

THE FUTURES MARKET

Rubber lends itself to futures trading, in that it is a world market and not, at least at present, subject to either monopoly or "monopsony" (a single buyer) and the material itself is well-defined as to grade and relatively non-perishable.

Active trading is conducted in three markets: New York, London and Singapore. Following is a condensed description of the New York futures contract of Commodity Exchange, Inc., 81 Broad St., New York.

Trading Unit—10 long tons or 22,400 lbs.

Price Multiples—Each point is 1/100 cent per pound, so a fluctuation of a point is \$2.24, of a cent \$224.00.
Contract basis—No. 1 Standard Quality Ribbed Smoked Sheets.

Deliverable grades—only rubber certificated by Eastern Weighing and Inspection Bureau may be delivered. Each contract unit (10 tons) must be uniform grade. Quality inferior to No. 1 but not inferior to half the difference between 1 and 2 may be delivered at a discount determined by the Differential Committee with approval of the Board Rubber Trade Group.

Rubber from any government stockpile (domestic or foreign) is not eligible.

There are packing specifications, with provision for a discount of 1/4 cent per lb. for stained packages, which are allowed up to 10% of the unit.

Delivery is in licensed warehouse in the Port of New York.

Trading Months—January, March, May, July, Sep-

tember & November within a 15 month period. Accordingly, as of May 1, 1960 trading is permitted for delivery in May, July, September & November 1960 and January, March, May & July 1961.

Commission Rates—\$20 for buying or selling for non-members, \$10 for members. Day Trades are charged at half rate and straddles (simultaneous purchase of one delivery and sale of another) at 70% of regular rate. The commission accrues to the member firm carrying the contract, and in addition the Exchange charges a fee of \$1.50 per contract cleared. Also, for non-residents of U. S. or Canada, there is an added commission of \$1.25 for each contract bought or sold.

Accordingly, a typical non-member completed round turn will cost \$41.50 for an American or Canadian or \$44 for others.

Daily Trading Limit—may be set by the Exchange. At present, the maximum daily fluctuation is 4 cents per pound.

London and Singapore futures markets have some technical differences from New York, but are close enough so that the three markets cannot fluctuate far out of line with one another, allowing for differences in delivery points and foreign exchange rates. At times, when any two of these markets get out of line, active arbitrage operators buy in the market which is relatively the cheaper and sell in the dearer. These operations serve to keep the three markets in line.

The Longer Outlook

In the long run, the supply of natural rubber is likely to be increased most by: (1) replantings of estates with higher yield and consequent lower cost trees; and (2) development of a sound political climate in the main producing countries when the newly independent governments gain stability and learn the wisdom of restoring the sound economic rules which prevailed under the hated colonialism, and which succeeded in luring the necessary capital for development, and in permitting it to operate effectively. Until these lessons have been learned, in all these countries, as they seem to have already in some, the danger exists that production gains will be retarded, or even that output may deteriorate from time to time.

At present, the only individual producing countries which have a dominant effect on output are Malaya and Indonesia, each accounting for slightly over one-third. However, the "others" have been increasing their shares, as will be seen from *Chart I*, and *Tables I* and *III*. According to Sir John Hay, who visited a group of estates in Malaya this past winter, Malayan output (60% of which is from estates) should rise from its present

700,000 ton level to nearly 900,000 in the next five years. In Indonesia, where estates account for only 35% and small-holders 65%, the prospect for increasing production is less promising. Sir John expects total new rubber requirements to rise in the next five years by 1 million tons, of which synthetics would supply three quarters.

As for future demand, this is perhaps more complex, involving as it does changes in technology and possible changes in public preference for different means of transportation (even the new "air-ride" car?); possible development of new non-automotive uses for rubber; increasing competition from synthetics (including polyisoprene, the new "synthetic natural") and even non-rubber materials. Another uncertainty is Communist consumption, which has been rising. However, the Russians are also expanding synthetic output, and there is no reason to doubt their eventual ability to follow our trend of replacing the natural by the man-made product. The Russians alone already claim synthetic capacity of 500,000 tons and plan to add another 1,000,000 tons by 1964. Smaller gains are planned for East Germany, Poland and Romania. Finally, both supply and demand are, of course, influenced in turn by the price level of natural rubber, partly by the absolute level, but more particularly by the price relative to competing synthetics and other materials.

CONCLUSION

Currently, natural rubber demand is outrunning supply. In part, the deficiency is seasonal and to that extent is due for correction during the flush producing period (July-December); see *Table IV*. For the year as a whole, the officially estimated deficiency of 56,000 tons should, from present indications, be more than offset by sales from government stockpiles, provided Communist buying isn't stepped up too much from the present rate. Moreover, increased replacement of natural by synthetics can be expected as long as a substantial price disparity holds, with every new improvement in synthetics adding impetus to the substitution trend. Already, U. S. synthetic capacity is estimated at 1,685,000 tons (22% over 1959 production) and is expected to be expanded as indicated in *Table V*.

Viewed in historical perspective, the present price of around 40¢ is high and has been maintained in the past 40 years only briefly, and by reason of war or other unusual circumstances. Sales of the more distant futures deliveries at close to 40¢ should be profitable for those prepared to assume the risks inherent in the situation.

* * *

PUT AND CALL BROKERS live by their lists of customers and their ability to find buyers and sellers of options. The competition among these brokers is severe, but it is not really price competition, because two options on the same stock often represent completely different pieces of goods.

Candid close-ups of good living in St. Louis

St. Louisans themselves picture what they like best

Who knows a community better than its people? Recently Union Electric sponsored an unusual photo contest. St. Louisans were asked to picture what they like best in the land they live in... and to send with each entry a caption explaining why the picture best represents St. Louis.

The response to this contest was overwhelming and revealing. Entries reflected St. Louisans' enjoyment of good living and their pride in St. Louis contrasts of tradition and bold action for progress. Here are three representative photos chosen from hundreds submitted:



Thelma Blumberg: "Creative art exhibition is wide open in opportunity to all... pictured here is the Westroads Art Show, one of St. Louis' many annual art exhibits."



Don Bush: "In a simple design—an octagonal balcony—one sees a link between the 100-year-old Campbell House and the new Plaza Apartments—a symbol of St. Louis' past and future greatness."



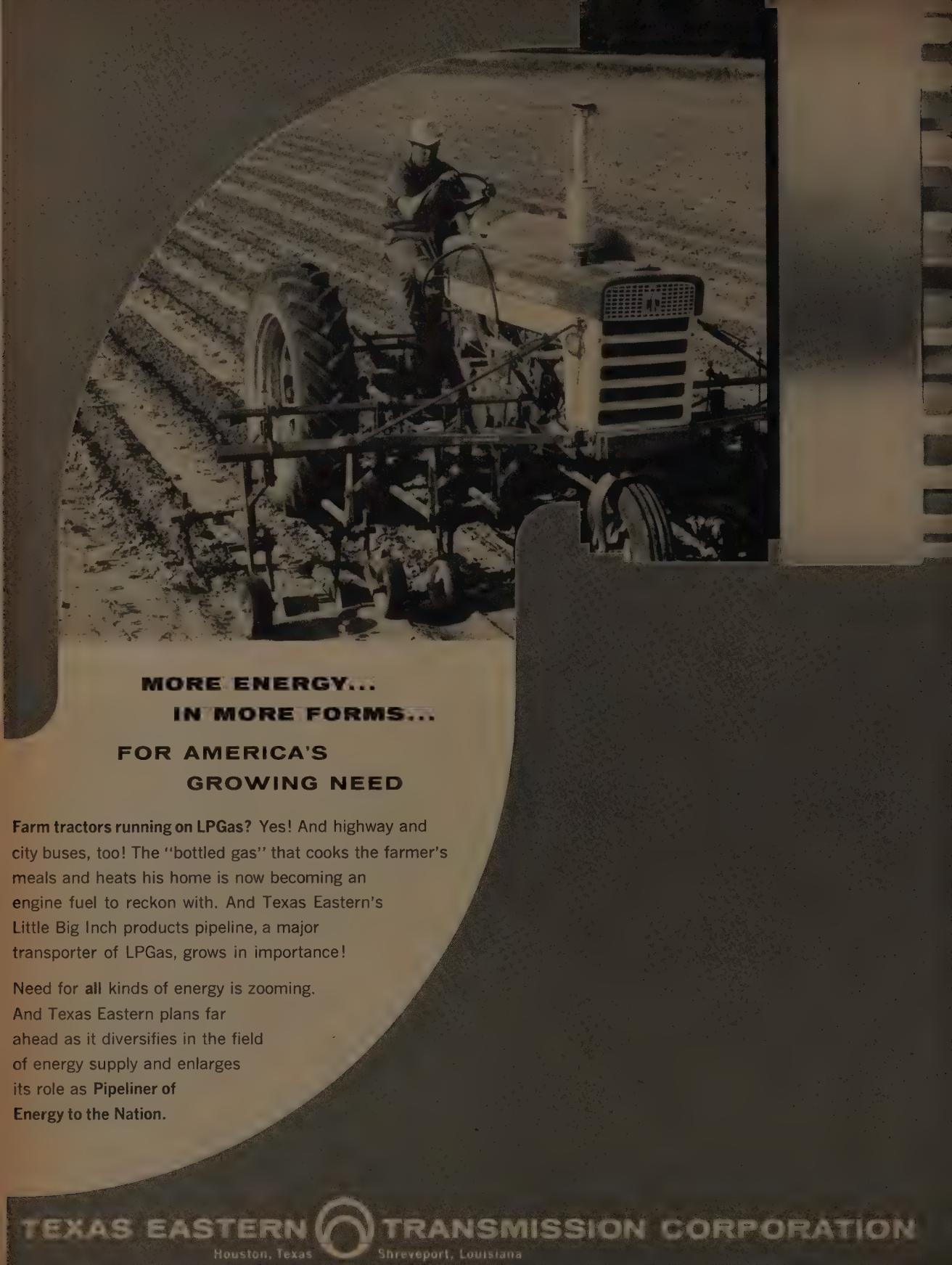
Jack Zehrt: "Pride in the St. Louis Hawks makes home games capacity turnouts as sports-minded St. Louisans share the fun of living in a world championship basketball team's home town."



St. Louis—and the 19,000 square miles around it which comprise the Strategic Center of America—has good living in abundance... natural wealth... excellent transportation... unlimited water... and plenty of electric power. In the past 10 years, Union Electric has spent some \$420 million to double the system capacity... has earmarked \$335 million for expansion during the next 5 years. If you are interested in further information about our area... plant sites... economic possibilities... living conditions, write us. Your inquiries will be held confidential. J. E. Johanson, Manager, Industrial Development,

UNION ELECTRIC COMPANY

St. Louis 1, Missouri



**MORE ENERGY...
IN MORE FORMS...
FOR AMERICA'S
GROWING NEED**

Farm tractors running on LPGas? Yes! And highway and city buses, too! The "bottled gas" that cooks the farmer's meals and heats his home is now becoming an engine fuel to reckon with. And Texas Eastern's Little Big Inch products pipeline, a major transporter of LPGas, grows in importance!

Need for all kinds of energy is zooming. And Texas Eastern plans far ahead as it diversifies in the field of energy supply and enlarges its role as Pipeliner of Energy to the Nation.

TEXAS EASTERN  **TRANSMISSION CORPORATION**
Houston, Texas Shreveport, Louisiana

'A Great Future Needs Great Transportation'*

by P. C. Spencer

IT IS GENERALLY RECOGNIZED that we are on the threshold of a new era in human experience, perhaps the most exciting, hazardous and momentous of all time. This new era has been variously described, usually as one kind of revolution or another. Undoubtedly, we must await the coming of the objective historian some years hence to find the precise label to fit the case.

During the last decade man cast his first primitive vehicles into space, and for the first time he caught a foggy glimpse of the "other" side of the moon. In the decade ahead we can be sure that, for better or for worse, he will get a first look at the "other" side of many things.

We are moving across a great watershed or frontier into a new environment, where the predominant forces to be reckoned with will include almost unbelievable advances in science and technology, soaring productivity of farm and factory, and a greatly accelerated—if not explosive—growth in population all over the world. It will be an environment unknown in the history of mankind, and it promises to give us a "ride" with enough excitement, thrills and challenges to stimulate even the most satiate among us. And poised prominently in the middle of the picture is the future of Transportation, spelled with a capital "T," because of its vital and indispensable relationship to every phase of this new, and now quite unfamiliar, environment.

To sum up our prospects for future greatness, as carefully weighed and measured by generally accepted authorities, suffice it that barring some kind of global suicide through nuclear warfare, runaway inflation or some other stupid or unforeseen disaster, there lies ahead the possibility—more likely, probability—of the greatest and fastest age of change—technological, economic and social—of all history. The possibilities are staggering.

Task Is Gigantic

If one desires to reduce the possible length, depth and breadth of future greatness to economic statistics, he has a wide range of choice, but for the most part they are most optimistic and very rosy. Just to begin, let us try on something for size. It has been said on good authority that during the next generation the

American economy will at least double in size—twice as large as it is today—and that, roughly speaking, means doubling the job of transporting goods and people,—a gigantic task about which we shall talk later.

We have under consideration now, however, the next decade—not the next generation—a much shorter period, but nonetheless most dynamic and sobering in the risks, hazards and challenges it presents. In gathering a few estimates on what lies ahead, I have tried to use figures which represent what a substantial number of economists are saying. (The most striking fact of the 1960 forecasts is the general unanimity of optimism, not only for 1960 but for an entire decade, which is already being commonly referred to as the "Soaring Sixties.") You may not agree in whole or in part, but at least these forecasts can serve as a basis for discussion.

In the next 10 years the Gross National Product should increase by 50%, some 250 billion in current dollars, to a level approaching three-quarters of a trillion dollars. Note that we are commencing to talk about GNP in terms of trillions. On the basis of today's distribution, in which transportation's share of total output is said to be around 20%, the expected increase in the nation's total business volume could mean an additional \$50 billion a year in transportation volume.

Of course, forecasters have been wrong in the past, and I am sure they will not be infallible in the future. But even admitting the possibility—or even probability—of over-optimism and resulting material error, it occurs to me that all those charged with the critical responsibility of providing an adequate transportation system for the nation's future needs really have no choice, for future planning purposes, but to accept the more optimistic or expansive view—at least in its medium range. The risks, hazards and unfortunate consequences of doing otherwise might prove much too costly, or even tragic.

One of the primary factors in bringing about the accelerated pace of industrial activity is future population growth—about which you have heard so much recently. It is not necessary that we immediately solve the future population problem for India, China, or any other foreign country; but right here at home in America, it is expected that our population, now about 178 million, will grow by another 33 million in the next decade. These added millions must be fed, housed and transported. Our working force should grow by 13 million or so, which means that transportation will hire about 1.5 million new employees. These workers will not only operate transport equipment, but they will help to build and maintain this equipment. Just to feed this expanding population and labor force, our farm production must be increased by about 20%.

*Theme of the National Transportation Institute.

P. C. Spencer is chairman of the board and chief executive officer of Sinclair Oil Corporation, the nation's ninth largest oil company. He began his career with Sinclair in 1934 in the legal department, and was named president in 1949, succeeding Harry F. Sinclair, founder of the company. Mr. Spencer was graduated from the University of Nebraska with a law degree in 1916. He served as chairman of the board of the American Petroleum Institute in 1954-1955.

As so many observers have been saying, in effect, "is the petroleum industry on the defensive?", it is interesting to note Author Spencer's observations from Sinclair Oil Corp.'s 1959 annual report:

"The oil industry has admittedly been passing through a period of unfavorable conditions. Thus, there are those who are apt to say petroleum was a growth industry. They fail to recall that similar dislocations have come and gone in the past, and undoubtedly they will occur again in the future. Informed observers, taking the longer view, recognize petroleum as one of the most basic and resilient industries, inextricably woven into our economic fabric, and with dynamic potentials solidly based on a continuously rising per capita consumption of energy at home and abroad."

Now what do these developments mean for transportation? Certainly they mean a vastly increased movement of goods and people, and a need for additional transport facilities to serve new areas, industries and people beyond anything we have ever known. They mean an almost universal demand for more speed, more efficiency, and more service—at reasonable costs. They mean a greater demand for food, fuels, clothing, housing, cars, and the many other necessities of our American way of life. They also mean we must press ahead vigorously with modernization of our highways, airways, waterways, pipe lines and rail facilities to meet the new requirements.

And, as if the unprecedented obligations of providing the future peace-time needs for transportation were not enough, we must keep to the forefront always the high-priority transportation needs of the nation for its defense and security in case of war, be it cold, lukewarm or hot. Recent hearings before the House Subcommittee on Armed Services brought to light some disquieting reports regarding our provisions for transport defense. As an oilman, naturally I was pleased that the report indicated our oil pipe lines are in sound condition, and that their capacity for expanded operations is unquestionable. In some transportation areas, however, "weak" spots were pointed out, which need strengthening for defense purposes, and obviously these areas must have our early attention and action.

How are all of these critical obligations and responsibilities to be performed? How are these impelling challenges to be met and mastered? The answer will not be simple, I am sure. It has many facets, requiring the time, the talents and the efforts of many minds, and many men. One prime requisite would seem to be indispensable, and that is the existence of an atmosphere of extreme adaptability to change, a crusading spirit of flexibility—if you will—which will not only tolerate but invite and reward new ideas, new methods, new practices, new procedures, if they give any reasonable promise of aiding in the attainment of our objectives.

In no other way will the job be accomplished adequately and on time.

Once upon a time when the problems of the world were much more simple, someone said "Necessity is the mother of invention." Well, in the period ahead, I would say that Mother Invention will be a very busy lady.

A great industrialist and a great leader, Crawford Greenewalt, president of duPont, addressed the 1959 annual meeting of the American Petroleum Institute, and he left with us some stirring and stimulating thoughts about this fast-changing industrial world. He pointed out that "competition between elements of a given industry, while spirited and often relentless, is perhaps the least important type of competition. Whole industries now stand vulnerable not only from competition outside their own sphere, but from changing ways of life, changing technologies and changing times as well. Those industries which learn to live with these conditions and to have sufficient flexibility to see beyond the confining circle of their immediate horizons are those which will live and flourish; those which do not, will find the going tough."

In admonishing oil people in their centennial year to keep alert, Mr. Greenewalt gave an analogy of interest to all of us. I again quote: "Some have felt the new competition keenly and of these perhaps the railroads afford the best example. Pipe lines today carry all types of energy in fluid and gaseous form and carry them with an investment of something like 10% of the railroads, and at a small fraction of their operating cost. Power lines carry energy on a vast scale without benefit of truck, tank cars or locomotives. Trucks carry products of all kinds over an enormously expanded network of highways." Mr. Greenewalt gave equally startling references to the shifts and changes in passenger transportation, which have been even more violent.

The point of Mr. Greenewalt's remarks was to suggest that perhaps if railroads had thought of themselves, or had been permitted to think of themselves, as purveyors of transportation service in the broadest sense instead of concerning themselves solely with trackage, rolling stock, etc., things might have been different. It was his way of reminding oilmen to consider themselves as energy merchants, as purveyors of "packaged power" or "portable energy" of all kinds, rather than simply as producers of oil and its products. It was a powerful challenge for creative thinking, unhampered by fixed traditions or physical shackles.

Lest, perhaps, I may have given the impression that I am unaware of the many new and advanced approaches to transport problems already under consideration, let me give a few words of high praise to some of the innovations and improvements that carrier spokesmen and transport equipment manufacturers tell me they foresee in the sixties, all of which are designed to provide better and more economical service to transportation users.

Some of these informed spokesmen see in so-called "piggybacking" a means of preserving the advantage of

railroad service to our continuously decentralizing industries, with straight containers effectively replacing the familiar box car as the principal transport unit of the railroads. Some advantages envisioned here include: savings in packing costs; expedited service; substantial elimination of loss and damage; and more dependable schedules. The same spokesmen forecast in the not-too-distant future 48-hour coast-to-coast "piggyback" service on roller-bearing flat cars, a change with great potentialities.*

In the dry cargo shipping field, where high loading and unloading costs are hampering the development of coast-wise and overseas operation, advocates of containerization expect to exploit fully its many possibilities.

Proponents of the hydrofoil vessel, who foresee possible speeds of 70 knots, are going forward with extensive research and practical experimentation.

The unseen but always-at-work pipe lines won't be standing still during the Sixties. Further advances in automation, with consequent savings in costs, will be attained. Pipe lines, already a proven success for handling non-liquid and non-gaseous products such as coal and gilsonite, are being considered as a means of transporting other solids which are suitable for movement in the form of slurry.

Other members of the carrier family will be pushing ahead too. Barge lines plan more powerful tows and larger barges with more standardization and interchange of equipment—all for the purpose of improved service at reduced costs.

In the relatively short history of the fantastic "jet age," miraculous progress has been made by the airlines in establishing themselves in the medium and long-distance passenger service, and they may be expected soon to extend their horizons into the cargo and short-distance passenger fields. Also, it is said that special all-cargo, low-cost air transports will permit airlines to participate effectively in the field of freight traffic.

Proponents of helicopters, as well as vertical take-off and landing aircraft, say they will press for important break-throughs to permit air carriers to capture some of the 200-mile and under passenger market—another area virtually untapped by air carriers.

The motor carriers have plans too. Some trucking executives believe that the field of usefulness of trucking can be expanded and costs can be reduced through the extended use of so-called "double bottoms," which is a trade name for a truck train consisting of two or more trailers in tandem. The use of this type of vehicle is now permissible on certain toll roads, and some carriers are hopeful that such permission may be extended to the new limited-access highways contemplated under the Interstate Highway Project.

Bus line operators are not idle. They have many plans for the future, including a program to take further advantage of highway modernization by offering luxury-type travel on fast schedules at low cost.

*See following article, "Freight Forwarders: Coordinators of Transportation."

And so on, and so on. These are just a few of the pluses that are on the planning and the drawing boards to meet the ever-growing needs of tomorrow's transport system.

Of course, it takes more than transportation property, plants and people—on or off the planning boards—to provide a modern, successful transport system. Important as these elements may be, they can be quite ineffective and quite innocuous unless they can be owned and operated in a favorable economic climate, a climate which stimulates the investment of the colossal sums of capital funds required, which provides the necessary incentive for the elimination of wasteful practices and procedures of all kinds, and which attracts the highest and most skillful type of management and other personnel from top to bottom. These all-important factors, essential to a healthy, growing transportation economy, require the most thoughtful and objective consideration and action by all regulatory bodies, by all legislative bodies, by all public officers, and by all others who are entrusted with the power and the duty to regulate or control any form of carrier service on behalf of the public.

Revision of Laws Needed

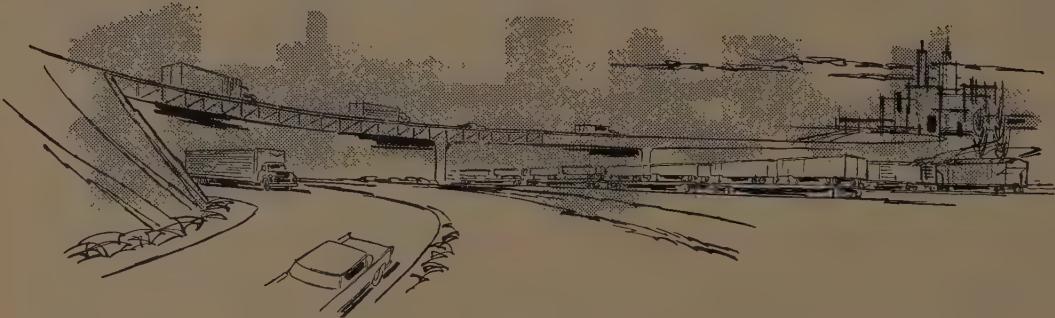
There is much to be accomplished in this direction. Most of our laws on this subject are products of the Thirties and bad times. In many instances they are definite stumbling blocks to a rapidly-changing and growing economy, especially in the field of transportation. We must have some changes, not necessarily revolutionary but certainly evolutionary. The need for removal of unnecessary rigidities, inflexibilities and restrictions in all directions should be apparent. It is said that all generalizations are false, including this one; nevertheless, it seems quite patent that our transport system can never be more effective, or more efficient, than the laws and the regulations and the administrators to which it must respond in its operation. Gains have been made in this area, of course, but there is definite need for more progress. Our target for a transport system to meet tomorrow's demand requires not only the vision and efforts of an enlightened transportation management, but the visions and efforts of an enlightened regulatory system.

An all-important objective, and one that never should be lost from sight, is the building and the maintenance of a national transportation system so adequate, so sound, so strong and so effective that it will be the bulwark of our American enterprise system, the strongest link in the chain to forestall any proposal to nationalize it, or any other basic industry.

Now: What do the users expect of transportation in the next 10 years? I am sure the users of transportation—and, of course, the public and investors as well—are going to expect and require the very best the transport industry can provide. However, that is only one side of the coin. If the transport industry is to fulfill the expectations of the users, it too has a right to expect and require many things, otherwise the job cannot be accomplished.

Pullman Incorporated

ANNUAL REPORT 1959



DIVISION AND SUBSIDIARIES

Pullman-Standard division
The M. W. Kellogg Company
Trailmobile Inc.
Trailmobile Finance Company
Swindell-Dressler Corporation
Transport Leasing Company

Pullman Incorporated earnings in 1959 after taxes were \$13,542,752, or \$5.87 per share, as compared with \$8,454,190, or \$3.63 per share, in 1958. The improvement in consolidated earnings, coming principally from the Kellogg companies and the Trailmobile group, demonstrates the benefits to Pullman Incorporated of the diversification program that commenced with the acquisition of The M. W. Kellogg Company some 15 years ago. Further diversification of Pullman's interests was accomplished during the year through the acquisition of the Swindell-Dressler Corporation of Pittsburgh and the formation of Transport Leasing Company, both of which are now wholly-owned subsidiaries of Pullman Incorporated.

ANNUAL REPORT HIGHLIGHTS

	1959	1958
FINANCIAL OPERATIONS		
Revenues	\$406,870,010	\$371,728,569
Expenses	<u>383,444,258</u>	<u>357,794,379</u>
Income before Income Taxes	23,425,752	13,934,190
Federal and Foreign Income Taxes	<u>9,883,000</u>	<u>5,480,000</u>
Net Income	\$ 13,542,752	\$ 8,454,190
Net Income Per Share	\$ 5.87	\$ 3.63
Dividends paid	\$ 4.00	\$ 4.00
FINANCIAL CONDITION (Year End)		
Current Assets	\$169,127,926	\$172,955,948
Current Liabilities	<u>46,567,620</u>	<u>46,322,166</u>
Working Capital	122,560,306	126,633,782
Investments and Other Assets	20,634,262	15,924,972
Property, Plant and Equipment, at Cost less Depreciation	<u>37,567,832</u>	<u>35,679,794</u>
Stockholders' Equity	\$180,762,400	\$178,238,548
Consisting of:		
Capital Stock	\$ 92,315,160	\$ 93,208,120
Capital Surplus	32,034,935	32,995,928
Earned Surplus	<u>56,412,305</u>	<u>52,034,500</u>
Number of shares outstanding at December 31	2,307,879	2,330,203
Stockholders' Equity per Share	\$78.32	\$76.49

For a copy of the 1959 Annual Report write: **Pullman Incorporated** 100 West 10th Street, Wilmington 99, Delaware

Freight Forwarders: Coordinators of Transportation

by Morris Forgash

I BELIEVE WE ALL AGREE that we stand upon the threshold of what can be described as "a new era in human experience;" and the next decade has staggering possibilities.

A Gross National Product, approaching three-quarters of a trillion dollars is in prospect as well as a population exploding past the 200 million mark, an enormously increased work force, a shifting of peoples to suburbs, and further decentralization of industries.

We are not promised a ride on a magic carpet into a wondrous land of ease and comfort—peace and security. There is presented to those of us in transportation a challenge and we are charged with a critical responsibility. Our task is to respond to that challenge by indicating, as briefly and concisely as we can, how we are prepared to discharge our responsibilities in this decisive new decade. What are we prepared or preparing to do to meet the imperative demand for greater speed, more efficiency, more and better service, at reasonable costs?

Let me respond, in rather broad and sweeping terms, from the standpoint of the freight forwarders—the coordinators of transportation—the agencies that make use of all forms and media of transport in a way that has been declared by the Congress to be in the public interest.

The forwarder, being an indirect carrier, with a history that loses itself in antiquity, has adapted to many changes in the past and is, I hope and believe, alert to innovations that hold promise of improved transportation in the future.

There is no time to recapitulate the magnificence and size of our total transportation plant. We have the greatest and most efficient transportation *systems* in the world. Invention and technology are daily opening up new vistas for transportation. But, as I said, we do have *systems* of transport, and in one area we are weak—that is in the area of coordination. There are encouraging signs on the horizon and I will discuss some of them.

The common denominator of our systems of transport is the carrying unit. If we are to serve the public

interest, which means the national defense as well as industrial shippers, as that interest deserves to be and must be served in the decade of the shining sixties, we must make progress in three basic areas: standardization, containerization, and coordination.

Coordination—the key to the problem—is, of course, more than a mechanical problem. It depends upon our willingness to embrace new concepts and to work together for their implementation. First, we must understand what coordination means. To be effective, coordination must result from a combination of services—highway and rail—or water, highway and rail—so knit together as to obtain from each medium its maximum advantages. The services should complement each other. The mere substitution of one type of service for another, though it may have some advantages from the standpoint of one or another of the carriers involved, does not result in real benefits to the public.

In a system made up of highly competitive modes of transportation, true coordination will not be achieved without first a desire to make it work and secondly, some give and take on all sides. If we work together towards a common goal we can achieve the kind of transportation system that we need and must have—that we will have ultimately, whether brought about by private or public initiative.

The Ultimate All-Purpose Container

In the matter of standardization we are making rapid strides. In the first year of its existence, 1958-59, the Special Committee on Containerization of the National Defense Transportation Association crashed the dimensional barrier by agreeing on a container of standard lengths (and multiples) and standard height and width. It was announced recently that the Department of the Army is beginning to test eight prototypes of the recommended 20 ft. x 8 ft. x 8 ft. container. Orders are pouring into the manufacturers from all sources.

I think of the container in still another dimension, the ultimate all-purpose container, a prototype of which was unveiled at the annual meeting of N.D.T.A. in Seattle last October. Hydraulically controlled, retractable ramps permit this container, of 40 ft. length, to haul four automobiles. With ramps retracted to floor and ceiling it will carry two 35 ft. long collapsible rubber containers, each with 3,800 gal. liquid capacity—a total of 7,600 gal. capacity. It will carry two automobiles and one rubber container. This container can be used for dry cargo, and when insulated and refrigerated, as it will be, it can carry perishables or frozen foods.

Morris Forgash, board chairman and president of United States Freight Co., is also chairman of the board of governors of The Freight Forwarders' Institute, as well as being a director of Transportation Association of America. Also, he is chairman of the Special Committee on Containerization and Standardization of the National Defense Transportation Association. Mr. Forgash has been with U.S.F. and subsidiaries since 1916.

The United States Freight Co. is the nation's largest freight forwarder, and recently it was announced that this company plans to obtain working control of American Export Lines, owner of such ships as the Constitution, Independence and 27 other vessels. Chairman of American Export is Mrs. Josephine Bay Paul, who is also chairman and president of A. M. Kidder & Co., a top Wall Street investment firm.

The potentialities of this all-purpose, standardized equipment are limitless and extend far beyond the horizons of our present thinking. Some of them are:

A material reduction of the enormous empty-car mileage. Forty percent of the total rail car mile movement is empty car miles.

Virtual elimination of the monumental loss and damage bill which is disastrous to shippers and carriers alike.

The building up of a common-denominator fleet of transport equipment—in substantial part with private funds—which will insure adequacy of transport capacity for defense and the national economy.

Truly coordinated transportation, by land, sea and air, with movement of goods in the same unit, door to door, throughout the United States and the world.

Tremendously increased speed in transit, with containers or roller-bearing flatcars that can even be integrated into passenger trains.

We know that without coordination the standardization of equipment will have only limited benefits for the public. Let's turn to that side of the coin.

"Piggybacking" is one of the innovations in transportation that holds promise of helping to meet the challenge of the sixties. Some of the claimed advantages and predicted potentials of the service include, what to many will seem the fantastic target of 48-hour coast-to-coast piggyback transit time. That one may have come from my own crystal ball and it could, of course, remain a figment of prophecy but I make no apologies for setting it up as a possible goal. Roller bearing equipment makes the speeds possible and we cannot afford to let things that are possible remain improbable.

The public is entitled to the best that public transportation can produce and we cannot afford to become so enmeshed in our own problems as carriers that we overlook the public interest. In my opinion some of the so-called "problems" concerning piggybacking are more imagined than real and certainly none of them are insurmountable.

Of the five plans of piggybacking so far put into use, two are participated in by motor carriers and railroads; two are adapted to freight forwarder service and are also open to and employed by shippers generally; and

one represents containerized railroad service in lieu of the conventional box-car service.

Experimentation and testing in the public market place may, and probably will, bring about modifications and improvements in some or all of the piggyback plans. The experimentation is now taking place and it should be encouraged and allowed to continue pursuant to existing law and administrative policy, as interpreted and applied by the regulatory agency and the Courts.

Rails Find Plans Advantageous

We in the forwarding industry are enthusiastic about the piggyback plans that we use, known as Plans III and IV. Under those plans the railroads haul the trailers, or the trailers and flatcars in the case of Plan IV, of forwarders or any shipper, at a charge which includes only the over-the-road movement from terminal to terminal. With nearly all of the factors which complicate the pricing of rail service eliminated, or reduced, to insignificance—terminal handling, switching, transfers, freight loss and damage, empty car miles, investment in and maintenance of equipment, and others—the railroads have been able to price the service on a basis that is remunerative to them and economical to the user. For the first time the railroads, through these plans, have found a way to make fully available to the public the inherent advantages of rail linehaul service, while avoiding the complexities and expense of rail terminal service.

If railroads had thought of themselves, or had been permitted to think of themselves, as purveyors of transportation service in the broadest sense, instead of concerning themselves solely with such matters as trackage and rolling stock, things might be different now. Plans III and IV piggyback afford the railroads, for the first time, an opportunity to provide pure transportation, shorn of all the costly incidents of transportation, and priced as transportation. The charge for the service, stated as "X" dollars per flatcar movement from A to B, makes sense, makes money for the railroads, and creates economies, speed, and increased service for the shippers.

The flat charge or fixed rate for hauling trailers under Plans III and IV is not without precedent. It was experimented with back in the 1920's in connection with the old container service which many will remember. That service dried up when the railroads were ordered by the I.C.C. to abandon the flat charge and apply a classification formula. Then, when railroads started hauling motor carrier trailers under Plan I they fixed a flat charge on the same basis as the Plan III and Plan IV charges. True, the motor charges are not published, and they are called divisions, but call them what you will—they are flat contract charges and they are always lower than the Plan III or IV charges.

We like Plans III and IV piggyback and are making the fullest possible utilization of them. Through use of these plans forwarders are able to bring the economies, improvements, and advantages of this radically new service directly to the shippers, regardless of size, loca-

tion, or distribution problems. By assembling shipments in and from wide areas surrounding the railheads, consolidating them for through movement in piggyback Plan III and Plan IV service, and distributing the shipments throughout wide areas surrounding the rail terminal points, forwarders equalize the opportunities of the shipping public to reap the benefits of the most modern transportation that has appeared on the scene.

I have condensed these few passing thoughts about coordination to stress the point that in employing these new concepts and ideas we must keep uppermost in mind the results in terms of advantages to the public, and not put the cart before the horse by thinking in terms of advantages to this or that carrier. Freight for-

warders have been able to utilize this new concept of containerized transportation by reason of certain plans published by the railroads. Other types of carriers are providing containerized transportation through other plans or media. The important thing is that the public receive the benefits no matter who provides the service.

And so I say transportation can meet the challenge of the public interest in the decade of the sixties if we wisely use the resources at our command. High among those resources are new concepts, new ideas, improved methods of doing things. I commend to you, as richest among these, the concepts and ideas to be cultivated in the field of standardization, containerization and co-ordination.

REGULAR QUARTERLY DIVIDEND

The Board of Directors has declared this day
COMMON STOCK DIVIDEND NO. 103
This is a regular quarterly dividend of

25¢ PER SHARE

Payable on May 16, 1960 to holders of record at close of business April 20, 1960

Milton C. Baldrige
Secretary
April 7, 1960

THE COLUMBIA GAS SYSTEM, INC.

GARDNER DENVER



104th CONSECUTIVE DIVIDEND

ON COMMON STOCK

A quarterly dividend of \$.50 per share on the common stock of Gardner-Denver Company has been declared by the Board of Directors of the company, payable June 1, 1960, to stockholders of record at the close of business on May 6, 1960.

Quincy, Illinois O. C. Knapheide, Jr.
March 24, 1960 Secretary

MAY-JUNE 1960

Research

... and Development of a wide range of new metals and processes establishes Allegheny Ludlum as a leader among steel companies. The growing architectural uses for stainless steel are highlighted by the cover of the 1959 Annual Report. It shows the stainless panels and window frames of the newest and largest building of Allegheny Ludlum's Research Center. The expanded and centralized Center itself is shown in the inset of the Annual Report cover; its significance to Allegheny Ludlum's growth and future is discussed in the Report.

Report in Brief	1959	1958
Sales and Revenues	\$232,559,479	\$202,572,808
Net Earnings	11,290,664	5,844,803
Earnings per Share of		
Common Stock	\$2.92	\$1.52
Dividends per Common Share	\$2.00	\$2.00
Working Capital at December 31	77,698,897	62,706,425
Shareowners' Investment		
(Net Worth)	109,173,541	105,268,370
Capital Expenditures	5,508,000	4,454,000
Number of Shareowners at		
December 31	18,944	19,678
Common Shares Outstanding at		
December 31	3,869,654	3,856,008

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ALLEGHENY LUDLUM
STEEL CORPORATION

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*Comparative
Statements
of Income*



reports
for 1959

all time high sales and earnings

Record sales of \$81,627,386 were reached for 1959. Sales have continuously grown each year during the last ten year period. This sales growth has been accomplished by diversification of engineered products, as well as acquisition of new products and complementary products.

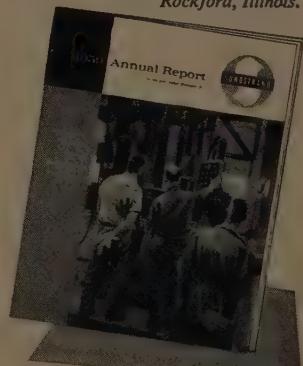
Net earnings after taxes in 1959 were \$3,753,172 compared with \$3,264,792 in 1958. Net earnings per share last year were \$2.36 compared to \$2.10 in 1958.

Net worth amounted to \$30,238,343 at the end of 1959 in comparison to \$27,878,381 the year before. Net worth has continuously increased each year during the last sixteen years. Net working capital position at December 31, 1959 was \$23,016,514, or an increase of \$630,460 over the previous year.

The year 1960 should be another year of significant progress for Sundstrand. We look forward with confidence to a good year of sales and profits, as well as to further accomplishments in our program of product diversification.

President

Copies of our 1959 Annual Report are available upon request. Address Sundstrand Corporation, Rockford, Illinois.



	1959	1958
Net Sales	\$81,627,386	\$80,011,433
Net Earnings before Taxes	7,619,392	6,620,654
Income Taxes	3,866,220	3,355,862
Income Taxes per Share	2.43	2.16
Net Earnings after Taxes	3,753,172	3,264,792
Earnings per Share	2.36 (a)	2.10 (a)
Shares Outstanding	1,592,295	1,552,904

(a) Based on shares outstanding at end of year.

SUNDSTRAND CORPORATION **ROCKFORD, ILLINOIS**

Pipeline Transportation of Energy

by Orville S. Carpenter

AN ABUNDANT SUPPLY OF ENERGY in all forms, coupled with a practical and economic means of making it work for us, has directly resulted in the high standard of living which we enjoy in the United States today. As a nation, we have been fortunately endowed with large quantities of energy-giving materials; these materials in combination with oxygen produce heat; this in turn becomes energy which may be harnessed for the use of man. These materials, termed "fossil fuels" by our geologists, are carbon or carbon and hydrogen, combined in various proportions to give us solid, liquid or gaseous fuels. In the utilization of these raw energy sources we meet a pressing two-fold problem:

1. To seek out and produce enough of the materials to satisfy the ever-expanding need.
2. To provide economic and efficient means of transporting them to the points of consumption.

Operating within a healthfully competitive climate, American business has been able to satisfy both parts of this basic energy equation.

It is with the second part of this problem that a pipeline system is concerned—the transportation of the various energy sources to the consumer. Wheeled conveyors, such as trucks and railroad cars, have been proven inadequate to keep pace with the nation's requirements insofar as the solid and liquid fuel sources are concerned. And, of course, they have won no place in the transportation of gaseous energy-producing materials, because gases must be cooled and compressed to reach a liquid state before they can be transported on wheels. This is at present a complicated and expensive operation.

Pipelines for both liquid and gaseous products have played a key role in transporting huge quantities of energy at costs which have contributed to our nation's economic growth. The pipeline is not restricted by terrain; it can, and does, cross the arid desert, the forbidding mountain range, and it spans rivers and lakes, and extends far out into the waters of the Gulf of Mexico. There is every reason to believe that the use of pipelines can be further extended and that pipeline technology will benefit industry through even broader applications.

Pipeline transportation of energy is a well established branch of the nation's economy, with roots going down

through many years of development. Crude oil gathering lines came into being almost with the birth of the American oil industry over 100 years ago, the first being designed and laid to supplant wasteful and expensive wagon transportation.

They were followed shortly thereafter by lines for transporting petroleum products turned out by refineries. In the early days of such pipelining, this process required the laying of a separate line for each type of product.

Pipelines: Key of Economic Efficiency

The extent and importance of the liquid-carrying pipelines are illustrated by the network of some 80,000 miles of crude oil trunk lines and about 45,000 miles of refined products lines now in daily use within the continental limits of the United States.

It is obvious that the petroleum industry could not have achieved its present high level of economic efficiency without pipelines: recent tabulations indicate that pipelines transport some 75% of all crude oil and 20% of all refined products moved in the United States. By way of comparison, in 1938 pipelines transported only about six percent of all refined products. Certainly the cost-and performance-conscious petroleum industry would not utilize pipelines for such a high percentage of its transportation requirements were not tangible benefits thereby derived. The resulting efficiencies, of course, ultimately benefit the consumer, as is shown by the fact that—before taxes—the energy in a gallon of gasoline can now be delivered to the automobile at less cost than was charged in 1938.

Since crude oil and refined products lines are buried in the ground, and are in evidence only at the widely spaced pumping stations and tank farms, the public has had little or no actual contact with them. The role of pipelines as transporters of energy received scant public attention until the construction of the interstate natural gas pipeline.

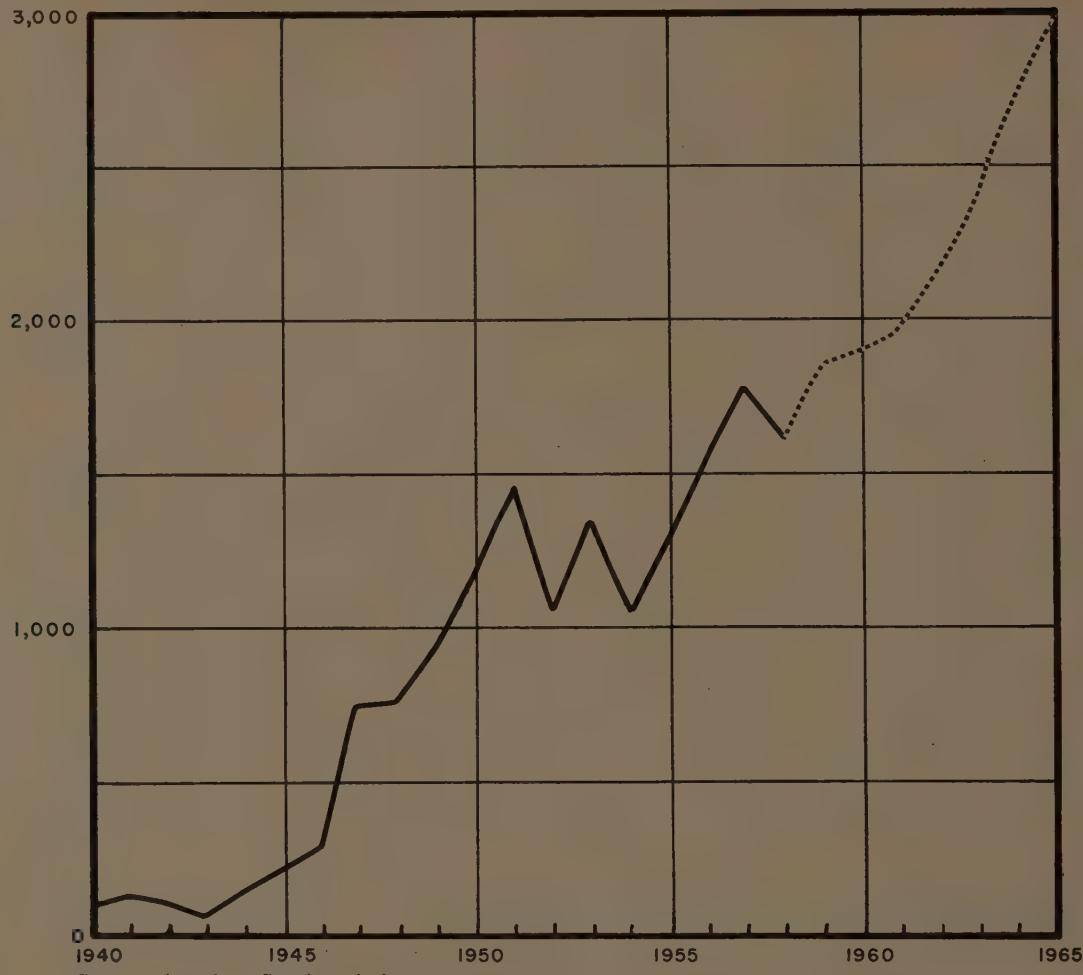
The growth of natural gas pipelines has been an amazing success story—perhaps the most spectacular in recent business history. Within the span of a very few years natural gas has grown from a commodity virtually unknown to consumers in many areas of the United States to its present position as one of the country's major industries. Not many years ago, natural gas was considered a valueless waste, a nuisance, by many producers. The vast East Texas oilfield, in the early '30's for instance, released and burned great volumes of natural gas in producing its oil.

In 1945 the natural gas transmission companies showed combined total assets of \$1 billion, had 77,000 miles of transmission trunk lines, and served nine mil-

Orville S. Carpenter, president of Texas Eastern Transmission Corporation, is both a lawyer and certified public accountant. He supervised the financial details of transferring possession of "The Big" and "The Little Big-Inch" pipelines from the Federal Government to Texas Eastern, and was chief financial officer of the company during its initial public financing.

DOLLARS
(MILLIONS)

Gas Utility and Pipeline Construction Expenditures, Actual and Projected



Source: American Gas Association.

lion ultimate customers. By the end of 1958 assets of transmission companies had grown to \$9 billion, mileage of their trunk lines had more than doubled to reach some 163,000 miles, and the number of individual customers had more than trebled, to total more than 28 million separate users of this form of latent energy.

Included in these figures is Texas Eastern Transmission Corporation, which came into existence in 1947, and which today has assets of almost one billion dollars. This one company, after little more than a decade, now possesses assets almost as great as all transmission companies combined had 15 years ago. Such phenomenal growth serves to emphasize the important role of the pipeline in everyday life.

The expanding use of pipelines for transportation of energy has largely come about through improvements in the technology of pipelining, which generally have resulted in reduced investment and reduced operating expense, both in total dollars and per unit of capacity.

Pressures Safe at 1,000 lbs. per sq. in.

The first natural gas pipelines, when viewed in the light of today's standards, were very crude affairs. One pipeline, laid in the 1870's was made of wood, with a four-inch wall thickness. Metal pipe was adopted in the late 1880's. It was usually of wrought iron, with flanged and bolted joints, and was not more than eight inches in diameter. It could be safely operated at pressures of only up to 80 pounds per square inch.

What a contrast when those old-time pipelines are compared with today's intricate system! After wrought iron pipe the industry began using lap-welded steel pipe and today commonly lays seamless pipe, or pipe welded by electric-resistance, electric-flash or submerged arc methods. As the metallurgical quality of steel and the pipe-making techniques have been improved, the industry has been able to design for ever-increasing operating pressures so that today pipelines built of high yield strength, carbon steels attain safe operation at

pressures of more than 1,000 pounds per square inch.

Pipe diameters have increased from eight inches to 36 inches—a common size today. Larger sized lines, already on the drawing boards of some pipeline companies, will undoubtedly see construction as economic conditions justify them. There is now in operation one gas carrying line which is 54 in. in diameter, almost large enough to allow a small man to walk within it. This line, traversing a thickly populated area, under a relatively low working pressure, shows the extent of technological progress that has been made in this area.

The high-yield strength carbon steels (product of both chemistry and manufacturing techniques) have reduced the tonnage of steel required to lay a mile of given diameter pipeline. Pipe wall thicknesses have been further reduced as methods of controlling manufacturing tolerances and corrosion protection have been perfected. This enables thinner walls to carry the desired working pressures. A typical 30-inch main line pipe wall will have steel only slightly over one-third inch in thickness.

Advances in compression equipment have been equally spectacular. Probably the most marked improvements have been brought about since the close of World War II. For all practical purposes, large volume pipeline transportation of liquids is limited to centrifugal pumping. In some instances highly volatile liquids are moved by piston or plunger pumps.

Until 1947 natural gas was pumped or moved by reciprocal compressors. In that year, Texas Eastern pioneered the adaptation of the centrifugal compressor to the special requirements of high-pressure, large-volume natural gas pipelines and thus has been proven highly satisfactory as well as both economic and reliable. Application of the centrifugal type units, coupled with improvements in design and materials of both compressors and prime movers, has tended to offset other increased costs of the past ten years, and thus has helped to hold the line on the cost of gas delivered to consumers.

Fully Automated System Seen

Prospects for technological improvements in pipelining are almost limitless. The young industry is not circumscribed by a consciousness of having attained the ultimate. Unsurpassable accomplishments have consistently been surpassed. Although certain applications are now in service, one major prospect remains—the full development and wide-spread application of the completely automated pipeline. Liquid pipelines, pumping a practically non-compressible fluid, have already installed stations which are controlled—that is, put on or taken off the line, speeded up or slowed down—solely by the hydraulic conditions obtaining within the liquid as it reaches the station site. The natural gas pipelines, working with a highly compressible medium are also making swift progress toward the fully automated system. Already there are in operation many installations which are controlled as "satellite" stations by other manned stations either up or down the line. These stations are not limited to one type of prime mover—or

compressor. In one instance, a series of satellite stations are controlled from a central dispatch point.

The natural gas pipelines recognize that automation, insofar as their problems are concerned, is in its infancy; but past history of that industry makes it certain that there will evolve—along with improvements in pipe and continuing strides in compression equipment—the design changes necessary to attain the goal of full automation.

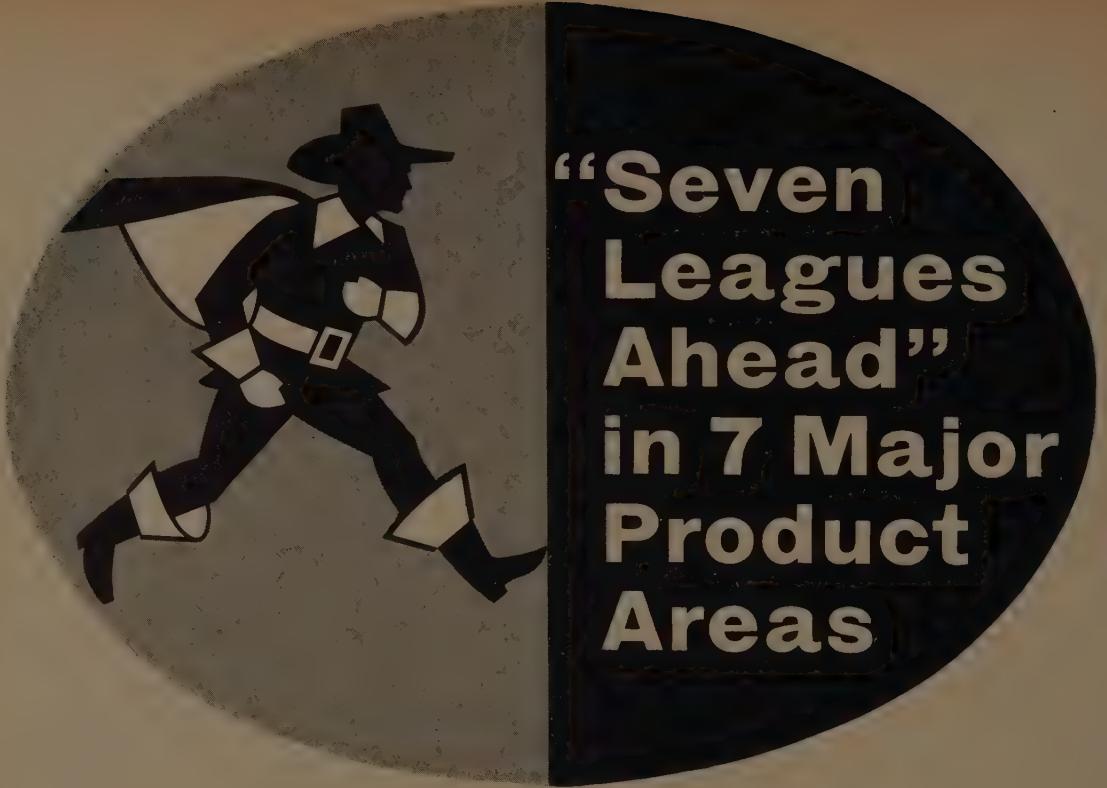
Natural gas pipelines, in common with other forms of transportation, operate most economically and efficiently when loaded to capacity. Through development of gas storage sites, close to consuming points, enormous strides have been made toward attaining this fully-loaded condition. Still further gains can be expected in the extension of storage facilities. In the case of liquefied gases, such storage areas are now being constructed by mining operations. Thus, the lines are moving closer to the optimum load factor and still further reducing the unit cost of transportation of energy. From 1960 through 1965 the natural gas pipeline industry is expected to have invested some \$846 million in additional underground storage. It also contemplates an outlay of approximately \$6,616 million in new lines, extensions and looping projects over that same period.

Texas Eastern Transmission Corporation has been in a position to participate fully in the industry's growth. Armed with the knowledge of what natural gas can do and where it can serve us, we anticipate continued growth. As pipeline transporters of energy we intend to participate through providing a degree of long-term growth and flexibility not previously possible with a single-purpose pipeline system.

Our studies and those of many other companies indicate that by 1980 consumption of energy in this country will be double that of the present demand. The extent of this growth can be realized by comparing this to the 30% growth experienced over the past decade. Some of this added demand will be met by natural gas, some by petroleum products and some by electricity—this last, in turn, having been generated largely by gas, petroleum products and coal. There is no doubt that sufficient quantities of mineral ("fossil") fuels will be available to meet these needs. *The business of transporting energy, therefore, is one of the outstanding growth industries of today.*

New Avenues of Transportation Energy

Developments of new energy sources and forms also point toward a glowing future for pipelines. Techniques accomplishing gasification of coal have been known and successful in pilot plant operations, but up to now the product has not been competitive in price, nor is it as uniform, or as pure, as natural gas. At some time in the future this pattern may change through improved techniques and processes and coal-gas may be transported by pipeline from coal-producing areas to consuming centers. Oil shale can be made to yield its oil content as a liquid, but still not at a competitive price; this, too, may be changed and the product, in either fluid or gaseous form, will respond readily to pipeline transporta-



"Seven Leagues Ahead" in 7 Major Product Areas

Norris-Thermador Corporation is recognized as a progressive, diversified Western manufacturer serving almost every industry and every class of consumers. It now enjoys a prime position in the manufacture of:

- *Automobile wheels*
- *Compressed gas cylinders*
- *Porcelain-on-steel and vitreous china plumbingware*
- *Stainless steel cookware*
- *Electric cooking, heating, and refrigerating appliances*
- *Bolts—industrial fasteners*
- *Military Products—artillery cartridge cases, rocket and missile hardware and electronic components*

Soundly established in today's markets, Norris-Thermador plans future growth and diversification, through expansion of product lines and facilities, and through high-quality acquisitions.



NORRIS-THERMADOR CORPORATION

Executive offices
5215 South Boyle Avenue Los Angeles 58, Calif.

Consumption of Energy Fuels and Energy from Water Power
in the Continental U. S. 1940-1965



Source: U. S. Bureau of Mines.

tion. Experiments now underway search for means economically to convert tar sands to competitive-priced burner oils. Again, pipelines would be the ideal transportation medium for the product.

When considering the pipeline's role in this expanding energy market, it is a mistake to limit the thinking solely to terms of liquids and gases. Recent successful operations of the gilsonite pipeline, as well as a pipeline carrying coal in slurry form, serve to indicate new avenues for the transportation of energy.

The pumping of solids for comparatively long distances is no longer a dream. While this pumping is not new, in the present state of the art it is much more difficult than to move comparable units of energy through a line in a liquid or gaseous state. Already, large lumps have been moved through short pipe spans,

while smaller solids, either pulverized or reduced to small particles, have been successfully carried through long lines. Present technology has accomplished the successful handling of such slurries.

The transportation of slurries, as intimate mixtures of solids and a supporting fluid are termed, offers industry an opportunity to process in transit. Taking advantage of the turbulent flow within a pipeline, it will be possible to inject and thoroughly blend additives to the stream. These will not only assist in maintaining the solids in suspension and in minimizing the attacks of corrosion, but also can alter the composition of the solid mechanically or chemically so that it will be more readily usable at its destination.

Technical problems involved in the necessary research and design of facilities for such pipeline projects

require special skills for their solution. Once such obstacles have been surmounted, however, appropriate instrumentation can replace technical skill after all the variables have been determined and optimum operation achieved. As costs of other means of transportation continue to increase, additional premiums will be placed on the ability of the pipeline to adapt its type of transportation to the forwarding of solid forms of energy.

As pointed out in the basic energy equation, one of the two problems of satisfying energy demands is the efficient and economical transportation of fuels to points of consumption. In every case, pipelines offer dependable all-weather transportation of energy at a relatively stable cost. Pipeline transportation possesses two basic advantages over railroads and trucks—a much smaller proportion of its operating costs are absorbed in meeting labor and materials demands, both of which appear to be in an upward price spiral, and the cost of returning the empty "carrier" is eliminated.

Pipelines themselves are no recent innovation. Much of the period of initial rapid and hectic growth is now behind the gas industry, and its pipeline companies can now give thought to long-run economic objectives—to attempt definition of their economic purpose. This purpose must rest solidly upon service, and the continual expansion of the natural gas industry offers to the natural gas pipelines the opportunity to become tomorrow's pipeliners of energy.

Cincinnati Analysts 24th NFFAS Member

The Cincinnati Society of Financial Analysts has become the 24th member of The National Federation of Financial Analysts Societies, according to an announcement from George M. Hansen, executive secretary and treasurer of The National Federation.

Perry B. Wydman, First National Bank, is president; Henry J. Arnold, George Eustis & Co., is vice president; and Hall C. Park, Benj. D. Bartlett & Co., is secretary-treasurer. Complete membership is listed below:

Frederick Amling, Miami University; Frank J. Andress, The Kroger Company; Clark L. Aumend, University of Cincinnati; Howard H. Bunker, C. J. Devine & Company; Reginald N. Barnard, W. E. Hutton & Company; Elmer R. Best, Union Central Life Insurance Company; Philip P. Brooks, Jr., The Central Trust Company; Austill Chambers, Halsey, Stuart & Company; LeRoy F. Church, Emery Industries, Inc.; J. Rawson Collins, First National Bank; Fred D. Danford, Armco Steel Corporation; Bruce R. Davies, Benjamin D. Bartlett & Company; Gilbert A. Davis, Harrison & Company.

Also, J. Allison Dryden, Harrison & Company; Wadsworth C. Dunn, Winters National Bank and Trust; Lawrence S. Fitzgerald, Merrill Lynch, Pierce, Fenner & Smith; Alfred J. Friedlander, Benjamin D. Bartlett & Company; Guido J. Gores, Fifth Third Union Trust Company; Willis D. Gradison, Jr., W. D. Gradison & Company; Gordon M. Graham, Middendorf & Company; H. Lyman Greer, Fifth Third Union Trust Company; Frank M. Grieme, The Kroger Company; Henry Hagner, Fifth Third Union Trust Company; Thomas C. Haydock, Scudder, Stevens & Clark; Lee Hoefinghoff, Jr., L. W. Hoefinghoff & Company; Henry Hoermann, Provident Savings Bank & Trust; James M. Hutton III, W. E. Hutton & Company.

Also, Arnold A. Johnson, Ohio National Life Insurance Company; Fred Korros, Westheimer & Company; Alfred C. LeFeber, Western & Southern Life Insurance Company; Allan P. Lucht, Federated Department Stores; Edgar J. Mack, Jr., Seasongood & Mayer; Wilton H. Mergler, Fifth Third Union Trust Co.; David R. Miller, Winters National Bank & Trust Company; Albert W. Moeller, Procter & Gamble Company; Logan Morrill, Logan Morrill Financial Cons.; Harold L. Norton, Union Central Life Insurance Co.; M. Herbert Oettinger, W. D. Gradison & Company; Hall C. Park, Benj. D. Bartlett & Co.; Edmond B. Pigeon, Winters National Bank & Trust Co.

Also, Neil Ransick, Charles A. Hinsch & Company, Inc.; Julius W. Reif, Provident Savings Bank & Trust; Thomas J. Reis, Seasongood & Mayer; E. James Roche, Union Central Life Insurance Company; Linden C. Sahlfeld, The First National Bank; Alfred P. Shepherd, Western & Southern Life Insurance Company; Justin J. Stevenson, Jr., W. E. Hutton & Company; Charles W. Swormstedt, Haskins & Sells; John E. Tobias, Westheimer & Company; Harold W. Walker, Lanier, Guy, Walker & Lanier; Robert H. Wessel, University of Cincinnati; Harold R. Worsnop, The Eagle Picher Company; Benjamin V. Wright, Jr., Champion Paper & Fibre Company.

Also, Perry B. Wydman, The First National Bank; William H. Zimmer, Cincinnati Gas & Electric Company; William F. Dohrmann, Harrison & Company; John J. Armbrust, Pohl & Company, Inc.; William P. Camm, Arthur Andersen & Company; Walter A. Zebrak, Jr., Central Trust Company; John S. Lillard; Joseph Link, Jr., Xavier University; Frank Peabody, Scudder, Stevens & Clark; Wilbur P. Calhoun; Henry J. Arnold, George Eustis & Company; Walter P. Johnston, Central Trust Company; Charles W. Staab, The Cincinnati Enquirer, Inc.; J. Joseph Tuohy; Richard E. Ball, University of Cincinnati.

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THE **WHITE** MOTOR COMPANY PROGRESS REPORT

	1959	1958
Net sales	\$333,101,125	\$269,476,766
Net income	14,209,244	7,191,352
Cash dividends paid on common stock	3,745,734	2,958,805
Net income per share of common stock	6.94	3.48*
Dividends paid per share of common stock	1.875*	1.50*

*adjusted for 100% stock dividend distributed in March, 1959.

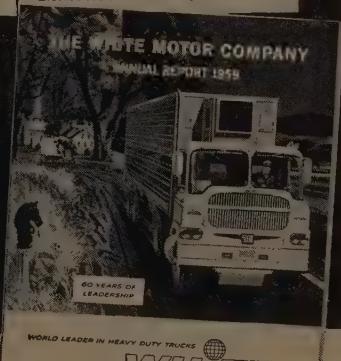
In a changing America
...and in the
years to come

1959 was the most successful year in the history of The White Motor Company. Sales and net income advanced significantly, and financial position remained strong.

Looking toward the years to come, continued growth would seem almost inevitable. The whole trucking industry is advancing at a much faster rate than the population or the gross

national product. Within the industry, the need for heavy-duty trucks is growing even faster than the trucking industry as a whole.

Because of its complete product line, top quality and custom-engineering, White is today better able to satisfy the needs of the heavy-duty truck operator than at any time in its 60 years of truck building.



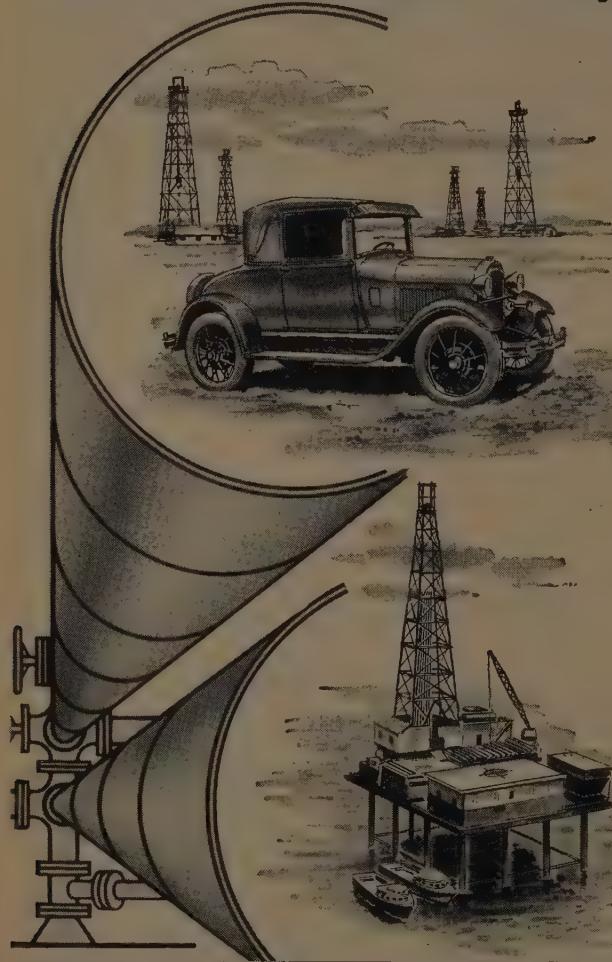
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Treasurer
The White Motor Company
Cleveland 1, Ohio

WORLD LEADER IN HEAVY DUTY TRUCKS  ...60 YEARS OF LEADERSHIP

WHITE

Panhandle Eastern Pipe Line's 1959 Annual Report Presents...



HIGHLIGHTS

FINANCIAL*

	1959	1958
Operating Revenues	\$136,911,825	\$120,736,537
Net Income	\$ 22,703,432	\$ 19,339,255
Per Share on Common Stock	\$3.30	\$2.80
Dividends on Common Stock	\$ 12,178,656	\$ 12,173,434
Per Share	\$1.80	\$1.80

OPERATING

	MCF	MCF
Total Annual Sales	431,155,346	411,561,719
Average Daily Sales	1,181,000	1,128,000
Maximum Day Sales	1,343,000	1,320,000
Gas Produced by Company	109,000,000	96,000,000
Gas Purchased by Company	351,000,000	344,000,000

*Such amounts include revenues resulting from rate increases, which may be subject to adjustment and refund upon final determination by the Federal Power Commission.

A LOOK AT THIRTY GROWING YEARS...

Natural Gas has come so far . . . so fast! In 1929, the industry transported only a limited volume of gas from the Southwest to distant markets. Now, more than ten trillion cubic feet of natural gas flow ceaselessly to some thirty-two million customers each year all over the nation. Dynamic growth for a dynamic, energetic industry!

This industry today has twenty billion dollars invested in plant and equipment — *the fifth largest industry in our economy*. Only the electric power, railway, petroleum and telephone industries have a larger plant investment than this newcomer . . . Natural Gas!

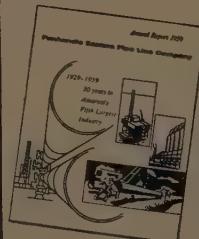
Panhandle Eastern, born thirty years ago, is proud of its pioneer position as producer, processor and long-distance transporter in this ever-expanding field. It's a sure indication that you can look to Natural Gas . . . and to Panhandle Eastern . . . for progress over the years to come.

...WITH 1959 THE BEST OF ALL!

Panhandle Eastern has come so far . . . so fast! And 1959 saw the Company set new records in production . . . in sales . . . in earnings per share. An excellent setting for the even greater progress to come.

To meet the tremendous growing demand for gas in Michigan, Indiana, Ohio, Illinois, Missouri and Kansas, Panhandle Eastern, with its subsidiary, Trunkline Gas Company, plan large-scale expansion in 1960. This program will increase capacity by some 28% — to be sold to consumers along the pipelines.

Upon completion of this expansion, the Panhandle-Trunkline system will consist of 10,000 miles of pipeline and 500,000 installed horsepower in compressor stations along the system at a cost of over \$600,000,000 to meet the needs of our growing service area.



A copy of the Panhandle Eastern Annual Report for 1959 including a thorough description of the year's results together with an informative review of the period 1929-1959 may be obtained by writing William C. Keefe, Secretary.



PANHANDLE EASTERN PIPE LINE COMPANY

120 Broadway, New York 5, New York

Pipelines—Oil's Steel Arteries

by J. L. Burke

OIL PIPELINES, one of the nation's major freight transporters, soon will be 100 years old. The first successful oil pipeline was completed in 1865, and on being placed in service immediately reduced the cost of transporting a barrel of crude oil from producers' wells, to a rail or water forwarding point, by \$2 to \$3 per barrel under that charged by teamsters for the same haul. Since that day oil pipelines have given every user of petroleum products measurable dollar and cents economies. The trend in pipeline transportation charges continues down.

Still, oil pipelines are little known or understood.

Usually buried two to three feet under ground, pipelines are the least visual of the several forms of transportation. Through a subterranean network of 190,000 miles of pipe—extending through every state on the U. S. mainland—oil pipelines daily transport more than seven million barrels of domestically produced crude oil to refineries and connecting carriers, and two and three-fourths million barrels of petroleum products from refineries to markets. They are indeed oil's steel arteries.

Pipeline movement of oil constitutes more than 17% of all domestic inter-city traffic moving by all types of carriers. The lines carry more traffic than all inland water carriers and more than all the motor carriers that report to the Interstate Commerce Commission. Pipeline traffic exceeds one-third of all rail traffic.

While other carriers move all kinds of freight, pipelines move only crude oil or crude oil products. From this fact arises the basic economics of the pipeline industry: practically all oil pipelines have been built and are owned by other branches of the oil industry.

A Jules Verne looking at pipelines might forecast the future movement of a variety of freight in capsule containers. Coal, gilsonite, and other commodities are already moving through pipelines in slurry or other liquefied forms.

"Verne" might see it as probable that pipe in the future will be of plastic and will be formed, as it is laid, by a traveling pipemaking machine. The major part of the material used to make the pipe might be pumped to the machine through line already laid, so that pipe stringing and hauling on the right-of-way could be eliminated.

This Jules Verne might even foresee a new era in passenger transport by pipeline express. Tubular cars moving through a large pipe at high speed might be an answer to many passenger-transport problems! Such

developments, though, are in a far-off problematical future. Most of us in pipelining are, naturally, much more concerned with shorter-range developments.

The operating and business problems of the pipeline industry today are largely of an engineering or technological nature. These we can solve in our own shops, and they are not especially difficult. The problems that we cannot solve in our own shops—and they are far more serious than the others—are those in the political realm.

Pipelines are the one form of transportation that the House Armed Services Committee recently found to be in sound condition; there is, the committee concluded, no question of their capacity for expanded operations in the event of a national emergency.

Nevertheless, we are frequently confronted with attempts, through congressional action or executive-agency encroachment, to alter the structure of the pipeline industry. All such attempts seem to be initiated by those who read some old literature on early abuses and, without bothering to check on current realities, now proceed to prescribe radical remedies for some ancient ailments that no longer exist.

It is true that before 1906 the pipelines were not regulated by the Interstate Commerce Commission. It is also true that, even after 1906, there was a brief period when industry morals were not quite up to today's standards. Those were the days when young and growing industries sometimes followed the law of the jungle as the commercial law of the land. But to judge the regulated pipelines today, upon their performance long before World War II, is about the same as judging modern railroading by the so-called robber-baron days of Jay Gould and Daniel Drew.

One recurrent—and totally unwarranted—suggestion for radical surgery on the pipelines is for separating these lines from their oil-industry owners. So it is that we hear frequent references to "the 20 major oil companies" and to "excessive concentration of pipeline ownership." Such blind, broadside attacks disregard the facts. Statistics show that there are 59, not 20, integrated companies that own pipelines. And many other non-integrated refining companies own pipelines or have pipeline interests.

Refiners and producers not only have free access to all common carrier pipelines, but they, and everyone else, have complete freedom to enter the pipeline business; and they have been doing so at an increasing rate. Even railroads have been building pipelines.

After all, the only people who want to ship oil are refiners—and there are only 300-odd refineries in the entire nation. Collectively, the 100 pipeline companies serve these 300 plants, their "shipper public", well.

J. L. Burke is president of Service Pipe Line Company, one of the nation's largest transporters of crude oil. He is an attorney and prominent in a number of organizations and other groups, both industry and government, dealing with national transportation problems.

Except for those refineries on deep water, which are oriented to tanker transport, practically every active refinery in the nation is connected by pipeline. In fact, independent refiners have greater flexibility of service in most instances than do the pipeline owners themselves. This was not, granted, always true. In the early days (because the lines were necessarily linked to the specific needs of a particular refinery) the pipelines in total were just a group of unrelated facilities.

Inter-Linked Carriers Developed

In World War II, because it was necessary to meet the demands of the nation's defense needs, pipelines were interconnected, and their capacities were expanded. Realizing that large volumes through larger-diameter lines provided lower unit costs, pipeline transporters developed into an inter-linked network of true common carriers.

One important result of this development has been to afford the independent refiner a wide choice of pipeline routes and crude oil sources without any capital outlay on his part. The pipeline business has become highly competitive, and pipelines today—like all other forms of transportation—are looking eagerly for additional traffic.

It is impossible to find any other kind of land transportation that is lower-cost than the pipeline transportation of oil. It costs more to mail a postcard than it does to transport a gallon of crude from Montana to New York by pipeline (over 2,100 miles) by a route using seven different connecting lines. Pipelines move oil for one-third the price of any other form of land transport.

Oil pipelines have even reduced their rates in recent years, despite increasing prices and at a time when all other transportation charges have spiraled upward. Pipeline rates today are lower than they were in 1950. And, because of technological advances, pipelines have been giving increasingly better service.

Nevertheless, some theorists — not pipeline users — still advance the muddled contention that the pipeline shipper-owner has a great and unfair advantage over his competitors. While both the owner and the other shipper pay the same published tariff rate, the fallacious theory runs, the owner actually receives his transportation for cost. There's only one possible way to make such an argument stick, and that's by ignoring the facts.

The ICC has held that reasonable rates are those producing a return of not more than 8% for crude oil pipelines and not more than 10% for products lines. Both types of lines, moreover, operate under a consent decree that limits dividend payments to 7% of valuation.

At best, then, the owner is limited strictly to what has been held to be a reasonable return on the value of property dedicated to common carrier service. From all the rates collected (his own and those of the other shippers) he can get no more than that reasonable return.

Certainly non-owner shippers have not entered any complaints. As a matter of fact, as ICC members re-

peatedly have testified, no person with a direct responsible interest in the oil business has filed any complaint regarding access to or use of common carrier pipelines in many years. It seems obvious, consequently, that the non-owners are well satisfied to let someone else invest the necessary millions, and assume the necessary risks inherent in any pipeline venture.

So, there is no valid reason for the recurring suggestions for separating the pipelines from their present relationships to the oil industry. It is difficult to see how anyone could seriously propose that the make-up of the pipeline industry should be recklessly experimented with unless he is committed to a policy of change for the sake of change alone. This overlooks the fundamental truth of the old maxim referred to in a recent speech by Interstate Commerce Commissioner Charles A. Webb concerning the same subject. He said: "Both the Congress and the Commission have followed the conservative maxim that if it is not necessary to change, it is necessary not to change." Webb decried the proposal for separation of pipelines from their oil industry owners by saying: "A sledge hammer should not be used to drive a tack."

The strange part of this whole situation is that those who make the most noise about pipeline abuses—they are few but highly vocal — freely admit that the pipelines are performing an outstanding common carrier service. They admit they are unable to specify just what the abuses are. They also either fail to recognize, or purposely refrain from mentioning, that Congress long ago made pipelines subject to the provisions of the Interstate Commerce Act, placing them under the jurisdiction of the Interstate Commerce Commission. The ICC is not only clothed with full power of compulsory process to insure complete information, but also with the power to prescribe prompt and adequate relief from unreasonable rates, discriminatory practices, or failure to afford common carrier service on reasonable request.

Since the theorist advocates of pipeline divorcement can advance no support for their argument, these facts seem to stand unchallenged:

1. The pipelines are performing an outstanding transportation service.
2. Those who produce or ship oil and pay the freight have no complaints about this service.
3. The pipelines' low rates contribute materially to the fact that petroleum products are available to the public at remarkably low prices almost within a stone's throw of any location.
4. There is nothing wrong with the pipelines economically that more traffic won't cure.
5. This is the one transportation agency, found by the House Armed Services Committee, to be in sound condition and easily able to expand operations in the event of national emergency.

From these five points it follows that any diagnosis of the pipelines must reach the sound conclusion that the patient is healthy. Given just a healthful political climate, the pipelines will continue to grow in service of the public welfare.

SOUTHERN CALIFORNIA EDISON COMPANY

64th ANNUAL REPORT

1959 FINANCIAL HIGHLIGHTS

	1959	% Over 1958
Common Dividend Rate	\$2.60	8.3
Earnings Per Share (Company only)*	3.80	2.7
Gross Electric Plant	\$1,366,097,306	7.7
Gross Revenue	\$281,763,942	10.0
Operating Expenses	\$220,804,989	10.1
Taxes	\$81,544,899	11.5
Net Income	\$43,394,886	8.5
Payrolls	\$56,910,662	6.6
Total Meters	1,628,694	4.3
Energy Sales (1,000 Kwh)	15,698,837	13.5
System Peak Demand (Kw)	3,181,000	7.4
Generating Capacity (Kw)	3,833,920	12.6

NEW PLANT

Edison's plant expansion program was continued in 1959 with the completion of two steam generating units, each with an effective operating capacity of 215,000 kilowatts. Presently under construction at the Huntington Beach Steam Station are two new units which will boost the overall capacity of that station to 875,000 kilowatts. These are the first computer-automated steam-electric power generating units to be built in the United States.

PERMANENT FINANCING

The Company obtained \$29,325,000 of new money in January 1959 through the sale of 500,000 shares of common stock. (In January 1960, \$30,000,000 of mortgage bonds were sold to repay \$23,000,000 in short-term bank loans borrowed in December 1959; the balance will be used to partially finance construction in 1960.)

*** EARNINGS PER SHARE**

Consolidated earnings per share were \$3.82 and \$3.74 in 1959 and 1958 respectively.

DIVIDENDS

The Company and its predecessors have a record of continuous dividend payments extending back to 1907 on the common stock and to 1896 on preferred stock. The current dividend on the common stock and original preferred stock, which participates with the common, is equal to \$2.60 a share on an annual basis.

CONDENSED CONSOLIDATED BALANCE SHEET Dec. 31, 1959

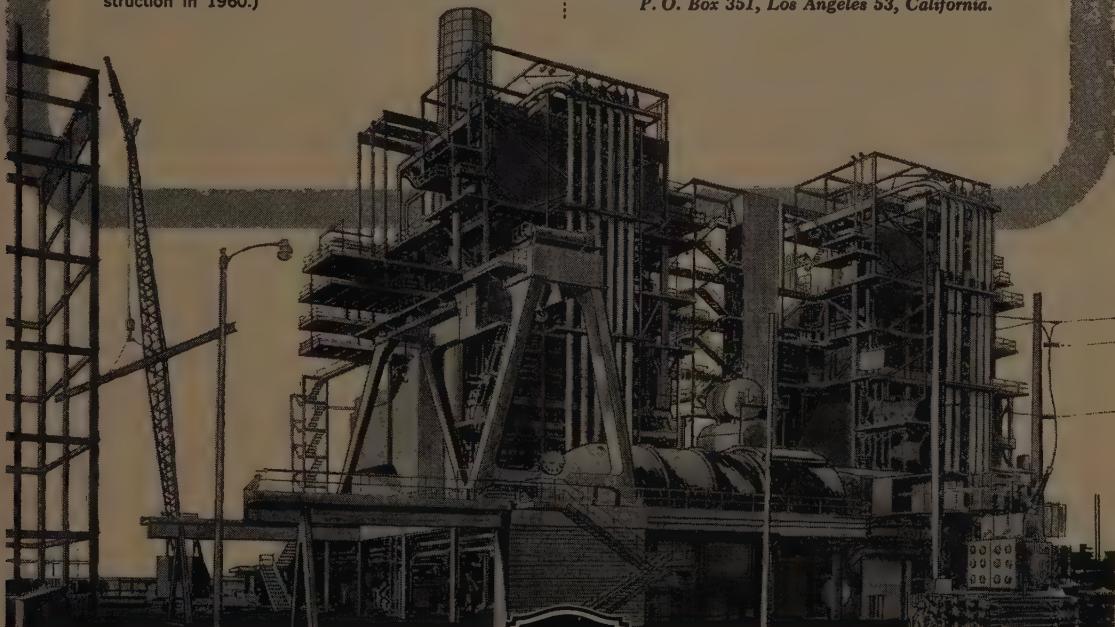
ASSETS

Electric Plant	\$1,145,622,713
Investments and Other Assets	18,511,250
Current Assets	81,560,978
Deferred Charges	2,688,621
Capital Stock Expense	<u>3,487,115</u>
Total Assets	<u>\$1,251,870,677</u>

LIABILITIES

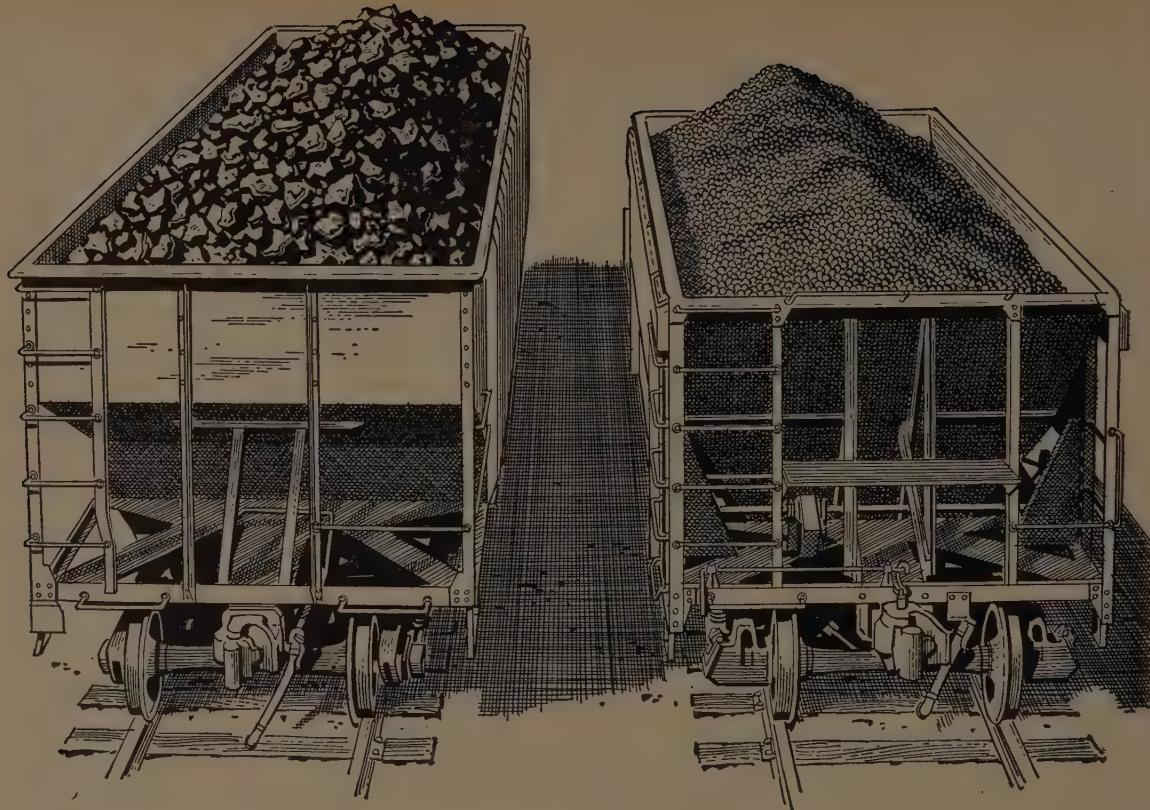
Stated Capital and Surplus	\$ 556,463,507
Long Term Debt	537,433,100
Current Liabilities	116,289,103
Deferred Income Tax Reserve	20,130,473
Other Reserves and Liabilities	21,554,494
Total Liabilities	<u>\$1,251,870,677</u>

For a copy of Southern California Edison's 1959 Annual Report write: A. L. Chavannes, Secretary, P. O. Box 351, Los Angeles 53, California.



SOUTHERN CALIFORNIA  EDISON COMPANY

EDISON BUILDING • 601 West Fifth Street • Los Angeles 53, California



Lignite and Taconite

an abundant coal, a plentiful iron ore that
together may spell a brighter future for us all

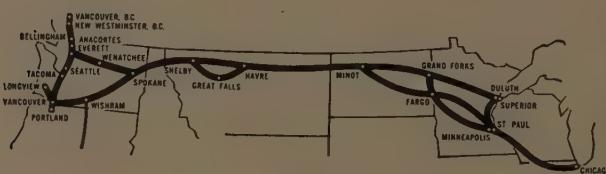
Under vast areas of North Dakota lie billions of tons of lignite—representing the nation's greatest reserve of fossil fuel. And in northern Minnesota, connected by Great Northern rails with Dakota's lignite beds, are enormous reserves of taconite. A form of iron ore, taconite requires processing in the Midwest before shipment via the Great Lakes to the big steel mills in Gary, Pittsburgh and other points.

To tap these two tremendous national resources Great Northern Railway is underwriting extensive research pro-

grams designed to find a method of beneficiating taconite and of utilizing lignite in the process.

We have, of course, a large stake in the ultimate success of this venture, for our lines serve both the lignite and taconite reserves. But of even greater import is the potential impact of this industrial research on the economies of these two mineral-rich states, and its value to the entire nation.

Our lignite and taconite research project provides new evidence that *progress is a Great Northern habit*.



Offices in principal cities of U. S. and Canada



Write: A. J. Haley, Director,
Mineral Research and
Development Department,
Great Northern Railway,
St. Paul 1, Minnesota.

Railroad Electrification Inevitable

by L. B. Curtis

COMMITTEE 13, RAILWAY ELECTRIFICATION, of the Electrical Section of the Association of American Railroads, has recommended that the United States adopt the 25-kv, 60-cycle system of electrification as a standard for heavily traveled main lines of the country's railroads. The committee is made up of electrical engineers from the railroads and related industries and utilities. It is desirous of acquainting the American Institute of Electrical Engineers of its problems and aspirations, and of securing the assistance of this great organization in reaching its major objective: the revival of electrification of railroads in North America.

There are 13 areas where it is believed electrification will produce savings to the railroads over diesel-electric operation and will reduce first-cost of electrification.

1—*An Improved Load Factor:* To meet competition it appears the railroads must operate shorter trains more frequently and faster over 24 hours of the day. The increased use of CTC (Centralized Traffic Control) makes possible the operation of a larger number of trains on fewer tracks, with the resultant abandonment of excess trackage. In addition, consolidation of railroads with parallel duplicating tracks is already underway. The result of these three trends will be a heavier concentration of trains on remaining tracks spread over the entire day. This load translated into electric power will be attractive to the electric utilities and will result in favorable rates for electricity.

2—*Electric Locomotive Maintenance:* Studies have shown that the economic life of the electric locomotive is approximately double that of the diesel electric. Also, the maintenance cost for the former, after the same number of years of service, is not more than half that of the diesel electric.

3—*Cost of Oil vs. Cost of Electricity:* At the present time the cost of oil and electricity at the drawbar is, in general, approximately the same. However, because of the increasing cost of securing oil, and the higher efficiency in producing electricity, it appears that as time goes on a differential in cost in favor of electricity will result.

4—*Use of Commercial-Frequency Power:* Because of the higher voltage, the elimination of frequency conversion, and the availability of public utility transmission lines for direct tapping of power, the electrification system can be greatly lightened and simplified. This

reduces the first cost of electrification, a hurdle that has always been a problem.

5—*Electrification Standards:* When all railroads adopt the standard 25-kv, 60-cycle system, most engineering required for one railroad will be applicable to others; material can be standardized and made interchangeable; construction costs can be reduced; and standard locomotives can be manufactured in quantity.

6—*Conversion of Diesel-Electric:* Diesel electrics that have not reached the end of their economic lives can be converted to electrics by replacing the diesel engines and the d-c generators with rectifiers, or the diesel engines alone with a-c motors, plus necessary transformers and control.

7—*Higher Speeds Favor Electrification:* Electric locomotives can be built with higher horsepower per unit than diesel electrics. In addition, the former has horsepower overload that the latter does not have. The higher the speed the greater the number of diesel-electric units is required to haul the same trailing load. Thus, the differential in locomotive first cost and resultant maintenance costs increases rapidly in favor of the electrics as the speed increases.

8—*CTC and Electrified Tracks:* Since the installation of centralized traffic control—which is on the increase—permits more trains to be operated on the same track, the resultant number of tracks required is reduced. In many cases one-pole bracket structures can be used for electrification instead of two-pole structures; the number of miles of catenary required is lessened; and the sectionalizing and substation requirements are minimized. This situation brought about by CTC will reduce the first cost, and later the maintenance cost, of electrification.

9—*Joint Use of Right-of-Way:* It is of mutual advantage to the railroads and the power companies for the latter to use railroad right-of-way for their transmission line structures built to support the electrification contact system. This is particularly true in congested areas. Thus, with this construction, first cost of electrification is further reduced.

10—*Electrification and Additional Income:* In heavily populated areas real estate values are high. In such places, railroads can sell air rights over their tracks, when electrified, which is not possible with diesel-electric operation due to the ventilation problem.

11—*Future Use of Atomic Power:* It is generally recognized that atomic power for generation of electricity is more feasible in central generating plants than in small units such as in locomotives. The increasing use of atomic power to supplement conventional fuels in the generation of electricity will insure, for the future, adequate sources of power for railroad electrification.

L. B. Curtis, assistant engineer, The Pennsylvania Railroad Co., is chairman of Association of American Railroads' Committee 13-Railway Electrification. Mr. Curtis holds an electrical engineering degree from Harvard University and has been with the Pennsylvania Railroad since 1928.

12—Electrification Made Desirable: In the event of war or some other catastrophe that would bring about a shortage of oil, the railroads, with all their motive power dependent upon oil, could very well be in trouble. It would be a decided advantage for rail transportation, under such conditions, to have its major lines electrified, for the generation of electricity is not dependent upon oil alone.

13—Effect of the Foreign Markets Foreign countries are flooding this country with their manufactured output. This competition is bound to reduce the eventual cost of all items required for electrification, as well as the cost of diesel-electric locomotives. However, by further reducing the first cost of electrification, that system is made still more attractive.

The above 13 areas present evidence that points to a more and more favorable economic position of electrification compared with other forms of motive power. This is of prime importance to the railroads themselves as they are forced to compete under the present unfair conditions of subsidy, taxation, and antequated regula-

tions and work rules. It is of national importance that the railroads be strong and efficient, for in times of national emergency no other mode of transportation in existence can replace them.

Electrification is also of importance to the power companies, the electrical manufacturers, and other related industries. It will contribute immensely to the nation's prosperity. It is a project worthy of the best efforts of the AAR, AIEE, Edison Electrical Institute, National Electrical Manufacturers Association, etc. With sufficient united effort and unanimity of opinion on the part of the engineers, railroad management will be glad to STOP—LOOK—LISTEN. Their investigations will convince them that electric motive power will render the most efficient and economical operation obtainable—and then the resurgence of railroad electrification will be inevitable.

Author's note: This paper is based upon a presentation for the American Institute of Electrical Engineers, and while it represents the author's opinion, it does not necessarily represent the views of the Pennsylvania Railroad.

**PUGET SOUND POWER
& LIGHT COMPANY**
Common Stock Dividend
No. 67

The Board of Directors has declared a dividend of 36¢ per share on Common Stock of Puget Sound Power & Light Company payable May 15, 1960, to stockholders of record at the close of business April 25, 1960.

J. H. CLAWSON
President

**R. J. Reynolds
Tobacco Company**

Makers of
Camel, Winston, Salem & Cavalier
cigarettes
Prince Albert, George Washington
Carter Hall
smoking tobacco

QUARTERLY DIVIDEND
A quarterly dividend of 55¢ per share has been declared on the Common Stock of the Company, payable June 6, 1960 to stockholders of record at the close of business May 13, 1960.

WILLIAM R. LYBROOK,
Secretary
Winston-Salem, N. C.
April 15, 1960



**Southern California
Edison Company**

DIVIDENDS

The Board of Directors has authorized the payment of the following quarterly dividends:

CUMULATIVE PREFERRED STOCK:

4.08% SERIES
Dividend No. 41
25½ cents per share;

4.24% SERIES
Dividend No. 18
26½ cents per share;

4.78% SERIES
Dividend No. 10
29¾ cents per share;

4.88% SERIES
Dividend No. 50
30½ cents per share.

The above dividends are payable May 31, 1960, to stockholders of record May 5. Checks will be mailed from the Company's office in Los Angeles, May 31.

P. C. HALE, Treasurer
April 21, 1960



**UNION
CARBIDE**

A quarterly dividend of Ninety cents (90¢) per share on the outstanding capital stock of this Corporation has been declared, payable June 1, 1960 to stockholders of record at the close of business May 2, 1960.

JOHN F. SHANKLIN
Secretary and Treasurer
UNION CARBIDE CORPORATION

**Pacific Gas and Electric
Company**

**DIVIDEND NOTICE
COMMON STOCK
DIVIDEND NO. 177**

The Board of Directors on March 16, 1960, declared a cash dividend for the first quarter of the year of 65 cents per share upon the Company's common capital stock. This dividend will be paid by check on April 15, 1960, to common stockholders of record at the close of business on March 25, 1960.

K. C. CHRISTENSEN,
Vice President and Treasurer
San Francisco, Calif.

P·G·and E·

American Viscose Corporation Reports Good Year!

The net earnings of American Viscose Corporation and its equity in those of 50 per cent owned companies in 1959 were \$5.18 per share compared with \$2.83 per share in 1958.

Earnings from American Viscose's own operations were \$15.2 million or \$2.98 per share, over double the 1958 earnings of \$6.9 million (\$1.36 per share). Both years include a Chemstrand dividend equal, after taxes, to \$.45 per share. Sales increased about ten per cent, from \$217 million in 1958 to \$240 million.

PRODUCTS IN STRONG DEMAND



The corporation sold the greatest volume of cellophane in its history. Larger quantities of rayon and acetate fibers and yarns were shipped to the textile industry. Tires with Tyrex yarn and cord are again standard equipment on 1960 model automobiles.

AVRON MAKES DEBUT



Avron, a high strength rayon staple, is considered a most significant development in the apparel field because of its superior drape, affinity for color, increased tensile strength and soft, luxurious hand. The most versatile fiber to date: it blends with all man-made or natural fibers.

COTRON RINGS UP SUCCESSFUL YEAR



Cotron fabrics, which are blends of cotton and Avisco rayon fibers, completed their first full year on the market. They have been enthusiastically received in the trade for men's, women's and children's apparel plus home furnishings.

LOOK TO AVISCO® FOR NEW IDEAS

Fibers and Packaging Films



AMERICAN VISCOSA CORPORATION
Philadelphia 3, Pennsylvania • New York 1, New York

Associated Companies (50% owned):
Chemstrand Corp. • Ketchikan Pulp Co. • AviSun Corp.

Business was equally good in sales and earnings for companies in which American Viscose has a 50 per cent ownership. The Chemstrand Corporation continued its outstanding growth. Earnings were \$24.1 million—about 30 per cent greater than in 1958. Sales were \$197 million, up from \$173 million. Ketchikan Pulp Company made significant gains. Its earnings were \$3.1 million, two and one-half times the previous year. Sales amounted to \$28.8 million, compared with \$21.9 million for 1958.

INDUSTRIAL USES OF FIBER ZOOMING



Yarns and fibers for industrial purposes doubled in sales during the year. Their future is bright. Especially engineered fibers for non-woven fabrics have strongly penetrated the industrial filter and surgical products markets.

DIVERSIFICATION AND EXPANSION



CONTINUE.—AviSun Corporation was organized in a fifty per cent association with Sun Oil Company for research, production and sales in petrochemical products. Expansion and diversification, whenever opportunities present themselves, will continue.

DIVIDENDS PAID DURING 1959



During the year, American Viscose paid dividends of \$7.6 million. The dividend was doubled in the 3rd and 4th quarters over that paid in the first half. At December 31, 1959, there were 5,118,434 shares outstanding, owned by approximately 26,200 shareowners.

Here is how 1959 shaped up in comparison with 1958:

	1959	1958
Net Sales	\$239,800,000	\$217,000,000
Net Earnings	15,200,000(a)	6,900,000(a)
Per Share		
Net Earnings	2.98(a)	1.36(a)
Dividends Paid	1.50	1.50
Equity in Chemstrand and Ketchikan		
Net Earnings	\$ 13,600,000	\$ 9,800,000
Per American Viscose Share	2.65	1.92
Combined Earnings of American Viscose and equity in earnings of Chemstrand and Ketchikan	\$5.18	\$2.83

(a) Includes Chemstrand dividend amounting to \$2,305,000 or \$.45 per share after income taxes.

*Tyrex is the collective trademark of Tyrex Inc. for tire yarn and cord.



A new source of energy, steam from natural geysers, is being harnessed at a 12,500 kilowatt electric plant north of San Francisco.

P·G and E·

54th ANNUAL REPORT-1959

Excerpts from 1959 Annual Report

The year 1959 brought to a close a decade of exceptional growth and prosperity in the area served by our Company. The surge in population, the expansion and diversification of industry and the mechanization of agriculture all combined to increase demands for electricity and gas which required an expenditure for plant and facilities over this ten-year period of \$1.7 billion.

Today our Company is the Nation's largest gas and electric operating utility from the standpoint of assets, which now total about \$2.4 billion. Ten years ago the Company had 2,255,000 customers; today it has 3,568,000. Only six other corporations have more stockholders.

Perhaps in no other year in the Company's history did climatic conditions have such a material impact on its operations. The net result was to distort our normal sales patterns, increase expenses, and reduce earnings somewhat from normal expectations.

1959 was a dry year, which reduced our hydro-electric generation, requiring us to make up that deficiency in our steam-electric plants, with consequent increases in fuel costs. On the other

hand, sales of electricity for agricultural pumping were greatly stimulated by the lack of precipitation. It was also a warm year, which materially reduced gas sales for space heating with an associated loss of many millions of dollars in revenues.

Expenditures for construction, amounting to \$159 million in 1959, were well below the levels of the two preceding years, but nevertheless amounted to over half a million dollars each working day. No new capacity was added to our electric generating resources in 1959, due to completion in the previous year of two steam units and of a large hydro construction program. The next major increments to our electric generating resources will be two 325,000 kilowatt steam units at our Pittsburg Power Plant, one of which will be placed in operation in 1960 and the other in 1961.

The Company is continuing its activity in the nuclear power field. It plans to start construction this year on a 60,000 kilowatt nuclear plant to be located in the northwestern part of its system, near Eureka.

Of immense importance to our customers, and to the future growth and development of our service area, is an adequate supply of natural gas. To this end we have been working diligently for a period of more than three years on a project to transport natural gas from the Province of Alberta in Canada to the California market. The project has been the subject of a succession of hearings before governmental agencies in both countries, and it is hoped that all necessary authorizations will be obtained soon so that construction can get under way by the middle of this year. Few undertakings have exceeded this in long-range significance to the Company and its customers.

Summing up, we believe the past year was one of real accomplishment and that the Company now stands on the threshold of another great period of growth and development. It is a source of satisfaction to your management, as it must be to stockholders, that the Company enters the decade of the Sixties with greater financial strength than at any time in its history.

FOR THE BOARD OF DIRECTORS

Chairman of the Board

President

PACIFIC GAS and ELECTRIC COMPANY
245 MARKET STREET, SAN FRANCISCO 6, CALIFORNIA

*For more information on this dynamic company write K. C. Christensen, Vice President and Treasurer
245 Market St., San Francisco 6, for P.G. & E's 1959 Annual Report.*

Letters

Thank You Mr. West

Editor:

Your thoughtfulness in sending me a copy of the March-April issue in which my pictures appear is greatly appreciated. May I take this opportunity of complimenting you on the fine format of The Journal and the interesting articles which it always includes. I am an avid reader.

Philip L. West
Vice President
New York Stock Exchange

* * *

New Format Please

Editor:

In violation of my usual practice of not writing to publications and making comments, I must say that the new format of the Analysts Journal represents a tremendous step forward in improving the appeal of the magazine.

I am particularly taken by the new practice of indicating articles to come in future issues. I believe that this serves to pique the curiosity of the reader and provides continuing interest as it encourages him to look forward to coming issues.

Please accept my sincerest compliments on the improvements already witnessed which I feel are just a harbinger of the continued growth in excellence which lies ahead for The Journal.

Monte J. Gordon
Manager, Research Dept.
Bache & Co.

* * *

Well, With a Little Crowding

Editor:

I enjoyed reading about the New York Society's new spacious headquarters, and particularly liked the pictures in your March-April issue. About the main dining room, you said it would seat 300 in your first story about the headquarters, and then in a picture caption you said 275. Which is right?

Maurice Wing
Portland, Ore.

(275 is more accurate—Ed.)

* * *

Asleep at the Switch?

Editor:

While I enjoyed reading your book review about "The World of the Wall Street Journal," in your last issue, I wonder if you realize that there is

another national daily newspaper—The Christian Science Monitor. You said that The Wall Street Journal is the only national daily.

Ray Rubin
Mt. Vernon, N. Y.

(We appreciate Reader Rubin's interest. However, we are correct. While the C. S. Monitor is of interest nationally, The W. S. Journal is printed in seven cities across the nation—Ed.).

* * *

'The Eyes of Texas'—Upon Us

Editor:

Recent issues of The Financial Analysts Journal seem to me to be a distinct credit to The National Federation of Financial Analysts Societies. I am sure your staff must take some personal satisfaction in this.

Harold B. Elsom
Vice Pres. and Trust Officer
Texas National Bank
Houston, Texas

* * *

'Sic Transit Gloria Mundi'!

Editor:

After many years of seeing and reading The Analysts Journal, or as you now prefer to call it The Financial Analysts Journal, I'm wondering why you changed the cover, also the name. Just for something to do? Or change for change sake?

Robert Sullivan
Denver, Colorado

(Glad you ask. While we wish to preserve tradition—which apparently is your point—we'd also like to improve upon it. Then, in the onward-and-upward spirit of the day, we not only wish to court excellence but to win superiority. Did we stumble?—Ed.).

IN MEMORIAM

Edward N. Siegler, 53, founder of Edward N. Siegler & Co., and a member of The Cleveland Society of Security Analysts, died last March. He was active in the Jewish Welfare Federation and Hebrew Free Loan Association. Mr. Siegler was also a member of the Midwest Stock Exchange. He is survived by his wife, two sons—Lawrence and Fred; and two daughters—June and Ivy.

Robert S. Robertson died April 11th. Mr. Robertson was vice president and a director of the firm of Leighly & Robertson. He was a member of The Investment Analysts Society of Chicago.

FIFTEEN YEARS AGO

IN THE JOURNAL

Emil Schram, then president of the New York Stock Exchange, in a luncheon address to The New York Society of Security Analysts, said:

"The conscientious and ethical Analyst, the type of man who will be most successful in the long run, will conduct himself like an ethical doctor. He does the best he knows how, regardless of the financial and professional consequences, and always considers the reputation of his profession more important than temporary financial gain. He simply is honest, serving the public conscientiously. There is nothing unique about this profession, except that it has more than the average opportunity to be dishonest, lazy and shiftless. The rewards for the man who works hard, serves his clients well, and keeps his feet on the ground, inevitably must be high."

And, 15 years later, Keith Funston, now president of the New York Stock Exchange, says:

"In recent years a dedicated and respected profession of some 6,500 Security Analysts has helped transform the nation's securities industry. The judgments of the highly trained Analyst of today—whether he is contributing to the investment decisions of an individual investor with a member firm of the New York Stock Exchange, or of a university endowment fund—are arrived at by painstaking analysis of all available information, plant visits, management assessment and (a vital consideration) well-conceived projections as to the future. The work of the Security Analyst, as a skilled professional, has been a significant factor in the amazing growth of shareownership in America."

SOUTHERN NATURAL GAS COMPANY

Birmingham, Alabama

Common Stock Dividend No. 85

A regular quarterly dividend of 50 cents per share has been declared on the Common Stock of Southern Natural Gas Company, payable June 14, 1960 to stockholders of record at the close of business on May 31, 1960.

W. S. TARVER,
Secretary

Dated: April 23, 1960.

PROBLEM:

to help
Merrill Lynch handle customer orders...
one every second!

SOLUTION:

Western Union Private Wire Services

Customer orders, at the fantastic rate of one every second, flow daily into *Merrill Lynch, Pierce, Fenner & Smith* New York Headquarters. How does Merrill Lynch—the world's largest brokerage house—handle this enormous volume speedily, accurately, and in writing? With the help of Western Union Private Wire Services.

So fast is the Merrill Lynch system that customers' confirmations are in the mail from the customers' branch office the same day of the transaction. For example, a customer in San Francisco will have his written confirmation the day after the transaction. Simultaneously, records at headquarters and branch offices are updated. The pattern of the rapidly changing securities markets is reflected at once to all Merrill Lynch offices.

In a business where absolute accuracy is a must, another

Western Union Private Wire Service helps provide faster, positive order-handling. This is Brokerfax* the Western Union facsimile service designed especially for brokerage houses. Merrill Lynch uses Brokerfax to receive the hand-written confirmation of odd-lot transactions from the floor of the stock exchange. No chance for transmission error; it's in writing! And market reports, news flashes, instructions and other data are flashed from headquarters to New York branch offices via Western Union facsimile services, too.

How about your company? Western Union Private Wire Services—designed for your company—can handle thousands of details and do it all with error-proof, written accuracy. You'll like the speed . . . and the savings. For more information, wire collect to: Western Union, Private Wire Division, New York, New York.



Market Information is transmitted to and from New York branch offices through this facsimile concentrator located in the Merrill Lynch main Wire Room.

Odd-lot Orders are confirmed, in seconds, through one of 8 Brokerfax circuits. Brokerfax keeps Wire Room continuously "on the floor."

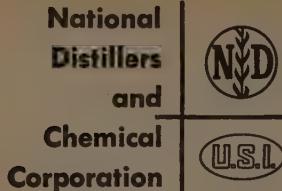
Billing Data are processed by computer; go onto Western Union Private Wires for transmittal to originating branch offices.



Over 4,250,000 transactions a year, speeded in part by Western Union Private Wires and Brokerfax, pass through this Merrill Lynch Wire Room at New York Headquarters.

WESTERN UNION

...first in Private Wire Services



DIVIDEND NOTICE

The Board of Directors has declared a quarterly dividend of 30¢ per share on the outstanding Common Stock, payable on June 1, 1960, to stockholders of record on May 11, 1960. The transfer books will not close.

PAUL C. JAMESON

April 28, 1960. Treasurer

Harrison-Walker Refractories Company

Board of Directors has declared for quarter ending June 30, 1960 DIVIDEND of ONE and ONE-HALF (1½%) PER CENT or \$1.50 per share on PREFERRED STOCK, payable July 20, 1960 to shareholders of record July 6, 1960.

Also declared a DIVIDEND of \$.45 per share on COMMON STOCK, payable June 1, 1960 to shareholders of record May 10, 1960.

The Board of Directors further declared a 3% common stock dividend payable July 1, 1960 at rate of 3 common shares for each 100 common shares held of record May 20, 1960. Fractional shares will be settled by Pittsburgh National Bank, Pennsylvania, using order forms. Broker's cut off date is June 1, 1960.

G. F. Cronmiller, Jr.
Vice President and Secretary

Pittsburgh, April 28, 1960

Pullman Incorporated

**-396th Dividend—
94th Consecutive Year of
Quarterly Cash Dividends**

A quarterly dividend of one dollar (\$1.00) per share will be paid on June 14, 1960, to stockholders of record May 25, 1960.

CHAMP CARRY
President

Division and Subsidiaries:
Pullman-Standard division
The M. W. Kellogg Company
Trailmobile Inc.
Trailmobile Finance Company
Swindell-Dressler Corporation
Transport Leasing Company

Ten plants
... now serving 19 states



Productive capacity

increased to 25,500,000 barrels annually

General Portland in 1959 acquired, by merger, Consolidated Cement Corporation with manufacturing plants in Kansas, Michigan and Ohio having an annual productive capacity of 6,000,000 barrels. Through this acquisition, the products of General Portland are now marketed in the important industrial and agricultural midwest.

Our plants in Florida, Tennessee and Texas have for many years served the growing areas of the southeast, south and southwest. So, as the new decade begins, General Portland cements are meeting construction needs in 19 states.



General Portland Cement Company

Offices:

Chicago, Illinois • Chattanooga, Tennessee

Dallas, Texas • Fort Worth, Texas

Houston, Texas • Fredonia, Kansas

Jackson, Michigan • Tampa, Florida

Miami, Florida • Los Angeles, California

*Trinity White
Portland
Cement*



This highly specialized portland cement affords the whitest white in concrete in a variety of construction uses. The distinctive beauty of this popular cement product is in demand for curtain wall panels, decorative trims and facings, terrazzo, cement paints and on any surface where pure, lasting white is required.



BOOK REVIEWS

COMMON STOCKS AND UNCOMMON PROFITS. By Philip A. Fisher. Harper & Brothers., New York. 164 pages. \$3.95.

Jeremy C. Jenks, executive vice-president of *The National Federation of Financial Analysts Societies*, says:

"This is an important book which discusses the really different aspects of investments; it is a book that needed to be written if the profession of Security Analysis is going to continue to progress."

Good enough. Mr. Jenks' prognostication has, indeed, proven correct, for so popular has the book been that this is the second edition.

And, speaking from nearly 30 years of investment experience, the author tells in detail what to do and what *not* to do for maximum investment profit.

In these pages, no simple short cuts are offered, and there are no formulas. But, as Mr. Jenks observes: "I think he [the author] has more nearly thought out the com-

plicated problems of stock investments than anyone else I know. His superior results are not based on talent and feel alone. They are based on shrewd observation of cause and effect."

The author is head of Fisher & Co., San Francisco, and is a member of *The Security Analysts of San Francisco*.

* * *

HOW TO INVEST AND LIVE IN MEXICO. By Daniel James. Mexico, D.F.: Carl D. Ross. 278 pages. \$5.95.

"There is a boom on in Mexico. . . . U. S. dollars have contributed to this boom in the past and will continue to do so in the future."

So says ex-U. S. Ambassador to Mexico William O'Dwyer, in an introduction to this highly-interesting financially informative and well-organized publication. Of course the fact that Author James is Mexico's *Wall Street Journal* correspondent, and a prolific writer elsewhere, is a fillip to readers interested in down-

to-earth facts, thus avoiding a literary Mexican hayride.

And Author James apparently was born "under the right star," for shortly after his book was published, Prudential Life Insurance Co. made a move that bears out the thesis in his chapter "The Era of Mutual Interest." The Pru kicked off the scientific 60's with a whopping \$100 million investment in Mexico's economy. In a conversation which this reviewer had recently with a native businessman from Mexico City—and quoting him—"now this is really something better than all that sweet talk about cooperative inter-American propaganda." And so it is! The Prudential obviously believes in a continued sound Mexican economy.

Author James says that Americans currently have a stake of about \$1 billion in Mexico and that "it is growing at a rate of about \$75 million a year." Also: ". . . a thriving stock market is bound to develop, and meanwhile there are attractive individual buys for the market operator able to seek them out." And to help market operators, this book has six chapters devoted to investing, *per se*, naming industries as well as specific companies. In fact, names of the U. S. companies now operating in Mexico read like a roster of corporate executives speaking before *The New York Society of*

STANDARD BRANDS Incorporated

COMMON STOCK DIVIDEND

The Board of Directors increased the quarterly dividend rate to 40c per share. This dividend is payable June 15, 1960 to stockholders of record on May 16, 1960.

PREFERRED STOCK DIVIDEND

The Board also declared a dividend of 87½c per share payable June 15, 1960 to stockholders of record on June 1, 1960.

Joseph H. Hoyt
Treasurer

April 28, 1960



OUTBOARD MARINE CORPORATION

DIVIDEND NOTICE

A cash dividend of twenty cents (20c) per share on the Common Stock of the Company has been declared by the Board of Directors, payable May 25, 1960, to stockholders of record May 5, 1960.

R. F. WALLACE, Secretary

April 20, 1960

CELOTEX

REG. U. S. PAT. OFF.

DIVIDEND NOTICE

The Celotex Corporation has declared dividends of

50c per common share
25c per preferred share

for the quarter ending April 30, 1960

Payable April 30, 1960
to stockholders of record
April 7, 1960

C. W. JOHNS
Treasurer

Security Analysts. "Mexico has become the third most important field in the world for American private investment, ranking only after Canada and Venezuela," states the author.

A brief history of Mexico's industrial development; information about living in Mexico; and finally the *modus operandi* of establishing

a business there is described in detail.

For all interested in the continued economic expansion of our great and gracious neighbor, and for those thinking of swapping the long commute for a jaunt on burro or airplane, this is the book to read before heading south of the border, down Mexico way.



THIS INVISIBLE FORCE KEEPS THE INDUSTRIAL SOUTHEAST GROWING

Industry on the move! That's the progress picture in the booming Industrial Southeast. An important force that fuels the growing number of factories and homes is provided by Southern Natural Gas Company. That's why the largest expansion program in the Company's history has just been completed—expansion costing over \$100,000,000—to deliver more fuel to more and more Southern Natural Gas customers.

Southern Natural's great expansion offers tangible evidence of the Company's faith in the future of this fast-growing territory. For further information on how natural gas is accelerating the rapid development of The Industrial Southeast, write for your copy of our 1959 Annual Report. Please address Department A.

**SOUTHERN NATURAL GAS
COMPANY**
Serving the Growing South

WATTS BUILDING • BIRMINGHAM, ALA.

INVESTMENTS. By David F. Jordan and Herbert E. Dougall. Prentice-Hall, Inc. 582 pages. \$10.60.

In its seventh edition this book speaks for itself. The book first appeared in 1919. And in the preface to the seventh edition, Co-Author Dougall says:

"Many developments have taken place in the field of investments since the sixth edition of this book appeared in 1952; the pattern of rates in the investment market has changed drastically; new institutional investors have become prominent; shifts have taken place in the relative importance of different investment media; a great bull market for common stocks has drawn many new investors into equities; new legislation affecting investment has been passed. The need became apparent for a very substantial revision to encompass all these new developments."

While familiar, undoubtedly, to many thousands of our readers, the thesis of this book is to show the investor how to develop a sound investment program and how to take advantage of day-to-day financial opportunities.

Co-Author Dougall (Mr. Jordan, former professor of finance at New York University, is deceased) is a member of *The Security Analysts of San Francisco*.

* * *

WHERE ARE THE CUSTOMERS' YACHTS? By Fred Schwed, Jr. Illustrated by Peter Arno. Fourth Edition. John Magee, Springfield, Mass. 217 pages. \$3.50.

With a subtitle of "A Good Hard Look at Wall Street," the publisher bills this reprint as the "Space Age Edition" and explains that "there is a small, hardy group of admirers of this book—a breed as clannish as Irish whiskey or Vin Rose drinkers who for years have happily quoted its rollicking passages, one to another."

Yes, indeed, this book is a most irreverent approach to Wall Street, men and money—in fact, it's downright (and delightfully) iconoclastic! And if a single paragraph can epitomize

mize the tome, it might run as follows:

As for the traditional spirit of reverent lip service to the principles of "sound investment for income," the deference to the philosophy of "the prudent man" and the like, well everybody is out trying to make a fast buck same as ever.

Financial Analysts: smile.

And as for the fast buck, the author relates that it's as elusive and ephemeral as ever, but from year-to-year the lyrics change.

For the young man thinking of Wall Street as a career the author presents some cogent questions, with a preface of "if you have to hesitate in answering them, count the answer wrong." For instance: "Do you perceive quite clearly what is the objection to playing a roulette wheel that has two zeros on it? (If not, don't bother to be a financier; be a roulette player)."

Well that gives you an idea of this "must reading" publication. By all means, come aboard — even if you've read it before.

BOSTON EDISON COMPANY

Preferred Dividend

A quarterly dividend of \$1.06 per share has been declared payable on the second day of May 1960 to stockholders of record at the close of business on April 8, 1960 of the Company's Cumulative Preferred Stock, 4.25% Series.

Preferred Dividend

A quarterly dividend of \$1.20 per share has been declared payable on the second day of May 1960 to stockholders of record at the close of business on April 8, 1960 of the Company's Cumulative Preferred Stock, 4.78% Series.

Common Dividend No. 284

A quarterly dividend of 75 cents per share on the Common Stock of the Company has been declared payable on the second day of May 1960 to stockholders of record at the close of business on April 8, 1960.

Checks will be mailed from Old Colony Trust Company, Boston.

ALBERT C. McMENIMEN
Treasurer

Boston, March 15, 1960

UNITED STATES LINES

COMPANY

Common
Stock
DIVIDEND



The Board of Directors has authorized the payment of a dividend of fifty cents (\$.50) per share payable June 10, 1960, to holders of Common Stock of record May 20, 1960.

WALTER E. FOX, Secretary
One Broadway, New York 4, N. Y.

The UNITED Corporation

The Board of Directors has declared a dividend from Net Investment Income of 10 cents per share on the COMMON STOCK, payable June 10, 1960 to stockholders of record at the close of business May 24, 1960.

W.M. HICKEY,
President

April 6, 1960

a MAJOR FACTOR in developing the Intermountain West

MOUNTAIN FUEL SUPPLY COMPANY

Salt Lake City, Utah

In rapidly expanding Utah-Wyoming area, the Company now serves 82 communities and more than 165,000 customers — in the production, transmission and distribution of Natural Gas.

Highlights of 1959 (and comparison with 1958)

	1959	1958
Total gas revenues . . .	\$28,528,855	\$26,088,644
Net income	3,871,619	3,438,800
Net income per share	1.77	1.57
Dividends per share	1.20	1.20
Book value per share	19.44	18.87
Number of customers	165,663	155,444

Dividends have been paid each year since its organization in 1935. Listed on Pittsburgh Stock Exchange.

1959 Annual Report will be sent upon request. Address:
Secretary, Mountain Fuel Supply Company, P. O. Box 989, Salt Lake City 10, Utah



MOUNTAIN FUEL SUPPLY COMPANY

180 East First South

Salt Lake City 10, Utah

MAY-JUNE 1960

ALLIED CHEMICAL

...through 3,000 chemicals...opens doors to better products...
for home...for farm...for industry...and for the new age of space



New decorative ceiling tile and insulating plank enable do-it-yourself fans to get "new rooms for old" in short order.



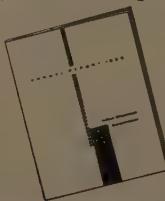
New fertilizer filling stations, in prime agricultural areas, let farmers "fill 'er up" as easily as buying gasoline.



New plastic-foam trailer panels, with urethane "filling," reduce weight, increase capacity, and are easy to install.



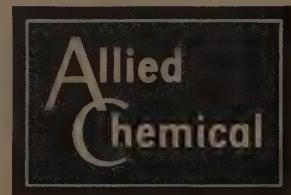
New boost for rocket engines is being attained by Allied Chemical developments in nitrogen and fluorine.



For a copy of the 1959 Annual Report and interim statement for the first 3 months of 1960, write to Allied Chemical Corporation, 61 Broadway, New York 6, N. Y., or phone HAnover 2-7300, Ext. 455.

BASIC
TO
AMERICA'S
PROGRESS

DIVISIONS: Barrett • General Chemical • International • National Aniline
Nitrogen • Plastics and Coal Chemicals • Semet-Solvay • Solvay Process



New York Financial Analysts Vital Factor in Wall Street

While the multi-facet aspects of New York City's Wall Street will continue to become more and more familiar across the nation, the geographic center of the nation's money capital will remain here (particularly in lower Manhattan) for at least the next quarter century.

And "because of the large number of Security Analysts congregated in the financial district, *The New York Society of Security Analysts* is the nation's leading organization in the field. It has gone a long way to help professionalize this activity; it provides daily luncheons at which outstanding corporate executives are glad to have the chance of addressing the assembled Analysts."

Moreover, in the 294-page detailed study, titled "Money Metropolis," published by Harvard University Press, *The Financial Analysts Journal* is described as having "acquired considerable stature as a professional publication."

Commenting upon this study, released in April, C. McKim Norton, executive vice president of Regional Plan Association, said that "growth and continued vitality are in store for the financial community of the

New York Metropolitan Region over the next 25 years."

The authors of the book are well-known economists. Sidney Robbins, a professor of finance at the Graduate School of Business of Columbia University, has written extensively on financial problems. Nestor Terleckyj, who is at the National Industrial Conference Board, has done considerable work on productivity. Also listed on the title page, as a collaborator, is Ira O. Scott, Jr., associate professor of finance at the Graduate School of Business of Columbia and now on leave with the Monetary Commission of the Committee for Economic Development.

As the population center of the

nation continues to move westward, as jet aircraft, giant data processing centers and closed circuit television speed man's ability to communicate across space, the question whether New York will continue to dominate the nation's money markets grows in urgency. "Money Metropolis" explores the implications of these changes as well as of other developments which affect the size and location of the nation's financial community. The book, analyzing the forces at work on the commercial banks, the insurance companies, the securities industry, and other financial activities, concludes that the New York area is in for more financial growth in the years ahead.

AIR REDUCTION Company, Incorporated



172nd CONSECUTIVE
COMMON STOCK DIVIDEND

The Board of Directors has declared a regular quarterly dividend of 62½¢ per share on the Common Stock of the Company, payable on June 6, 1960, to holders of record on May 18, 1960, and the thirty-fourth regular quarterly dividend of \$1.125 per share on the 4.50% Cumulative Preferred Stock, 1951 Series, of the Company, payable on June 6, 1960, to holders of record on May 18, 1960.

April 27, 1960

T. S. O'BRIEN, Secretary

MINNEAPOLIS GAS COMPANY

739 Marquette Avenue
Minneapolis 2, Minnesota

Common Stock Dividend

The Board of Directors of Minneapolis Gas Company, at a meeting held on April 7, 1960, declared a dividend of 38 ¾ cents per share payable in cash on May 10, 1960, to common stockholders of record as of the close of business April 28, 1960.

G. T. MULLIN, President

Newport News Shipbuilding and Dry Dock Company

Quarterly Statement of Billings, Estimated Unbilled Balance of Major Contracts and Number of Employees

	Three Fiscal Months Ended	
	March 28, 1960	March 30, 1959
Billings during the period from shipbuilding, ship conversions and repairs, hydraulic turbines and other work	\$ 38,206,455	\$ 41,838,063
At March 28, 1960		
Estimated balance of major contracts unbilled at the close of the period	\$300,975,906	\$315,753,882
At March 30, 1959		
Equivalent number of employees, on a 40-hour basis, working during the last week of the period	15,673	12,823

The Company reports income from long-term shipbuilding contracts on the percentage-of-completion basis; such income for any period will therefore vary from the billings on the contracts. Contract billings and estimated unbilled balances are subject to possible adjustments resulting from statutory and contractual provisions.

By Order of the Board of Directors
R. I. FLETCHER, Financial Vice President

April 27, 1960

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CONSOLIDATED NATURAL GAS COMPANY

30 Rockefeller Plaza
New York 20, N. Y.

DIVIDEND NO. 49

The Board of Directors has this day declared a regular quarterly dividend of Fifty-Five Cents (55c) per share on the capital stock of the Company, payable May 16, 1960 to stockholders of record at the close of business April 15, 1960.

JOHN MILLER, Secretary

March 16, 1960



COMMON STOCK DIVIDEND

The Board of Directors of Central and South West Corporation at its meeting held on April 14, 1960, declared a regular quarterly dividend of twenty-four cents (24c) per share on the Corporation's Common Stock. This dividend is payable May 31, 1960, to stockholders of record April 29, 1960.

LEROY J. SCHEUERMAN
Secretary

CENTRAL AND SOUTH WEST CORPORATION

Wilmington, Delaware

GOOD YEAR

COMMON DIVIDEND No. 108

The Board of Directors today declared the following dividend:

22½ cents per share on the Common Stock, payable June 15, 1960 to stockholders of record at the close of business May 16, 1960.

The Goodyear Tire & Rubber Co.
By Arden E. Firestone,
Secretary

April 4, 1960

THE GREATEST NAME IN RUBBER

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CALIFORNIA-PACIFIC UTILITIES COMPANY

Quarterly dividends payable June 15 to shareholders of record June 1, have been declared at the following rates per share:

5% Preferred	25¢
5% Convertible Preferred	25¢
5.40% Convertible Preferred	27¢
5½% Convertible Preferred	27½¢
Common	22½¢

D. J. Ley, VICE-PRES. & TREAS.

April 11, 1960



GENERAL PORTLAND CEMENT COMPANY

Common Stock Dividend

The Board of Directors of General Portland Cement Company has this day declared a quarterly dividend upon its Common Stock of 30 cents per share, payable June 30, 1960 to stockholders of record at the close of business on June 10, 1960. The stock transfer books will remain open.

HOWARD MILLER,
Treasurer

April 26, 1960

IBM

181ST CONSECUTIVE QUARTERLY DIVIDEND

The Board of Directors of International Business Machines Corporation has today declared a quarterly cash dividend of \$.75 per share, payable June 10, 1960, to stockholders of record at the close of business on May 10, 1960.

C. V. BOULTON,
Treasurer

590 Madison Avenue
New York 22, N. Y.
April 26, 1960



INTERNATIONAL BUSINESS MACHINES CORP.

The Directors of International Harvester Company have declared quarterly dividend No. 167 of one dollar and seventy-five cents (\$1.75) per share on the preferred stock, payable June 1, 1960 to stockholders of record at the close of business on May 5, 1960.

GERARD J. EGERT, Secretary

The Directors of International Harvester Company have declared quarterly dividend No. 167 of one dollar and seventy-five cents (\$1.75) per share on the preferred stock, payable June 1, 1960 to stockholders of record at the close of business on May 5, 1960.

GERARD J. EGERT, Secretary



Geologists use new portable oil searching tool to probe shallow rock structures that conventional seismographs bypass.

Meeting the Future Need for Oil

The biggest job America's oilmen face is finding economically all the petroleum energy this country will need in the "soaring sixties." Most economists expect petroleum demand to rise 50 per cent by 1970.

Sinclair is tackling the heart of the problem by expanding its research into more efficient means of finding and recovering oil and gas. It is seeking scientific break-throughs that will mean more barrels of oil found and recovered per dollar spent.

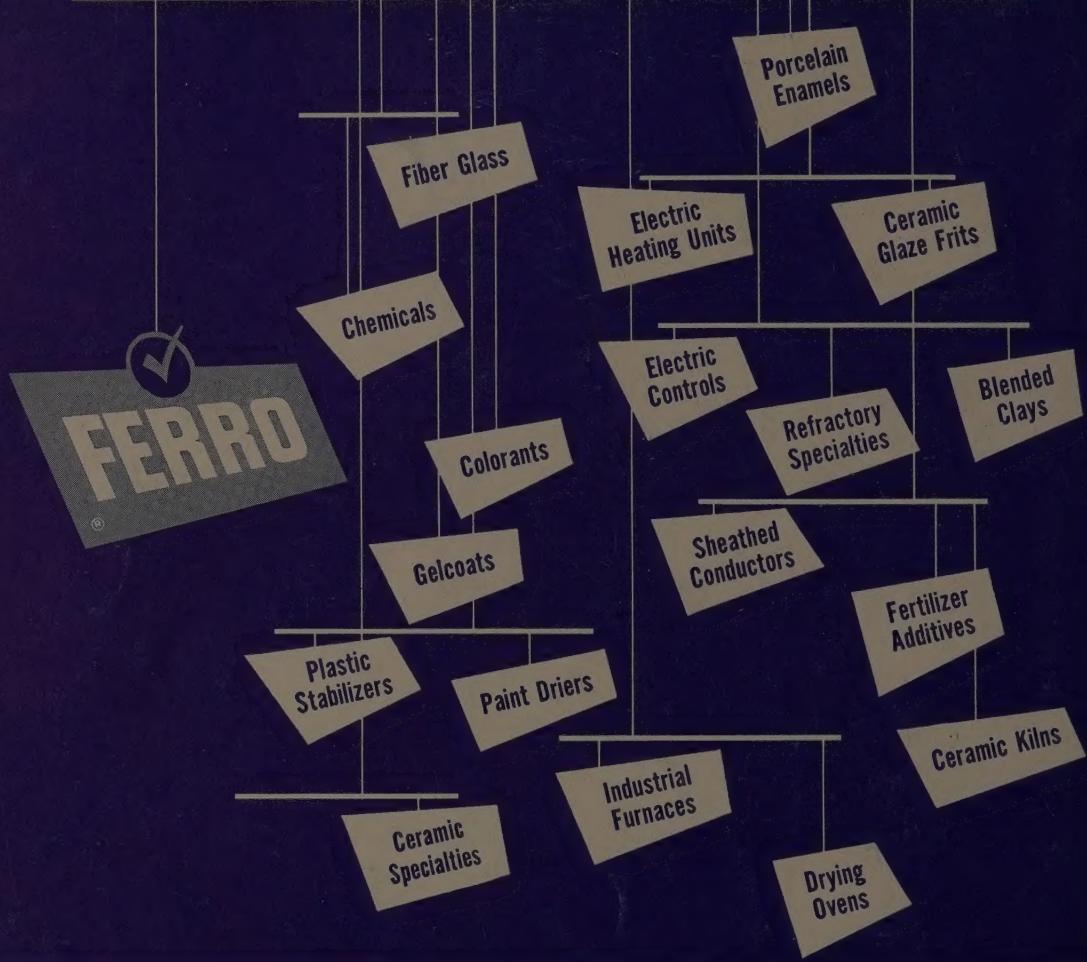
One experiment being tested is the unique, portable seismograph above. Developed by Sinclair Research Laboratories, Inc., this device quickly probes subsurface areas bypassed by conventional instruments.

Sinclair believes that from research will come better ways of obtaining the low-cost petroleum energy on which this nation thrives—and depends.

Send for informative free booklet "Energy for the Soaring Sixties"—yours for the asking.



A Great Name in Oil



* CONDENSED CONSOLIDATED BALANCE SHEET AS OF DECEMBER 31, 1959

ASSETS		LIABILITIES
Cash & U. S. Securities	\$ 4,166,553	
Notes & Accounts Receivable	9,256,677	\$10,110,818
Inventories	12,253,039	
Other Current Assets	973,215	
Current Assets	<u>\$26,649,484</u>	
Other Assets, Including Investments, Property, Etc.	17,155,296	
	<u>\$43,804,780</u>	
		Current Liabilities
		Long-Term Liabilities
		Due After 1960
		Other Liabilities & Reserves
		Shareholders' Equity
		<u>27,507,741</u>
		<u>\$43,804,780</u>

*Annual Report, Just Released, Is Available on Request



FERRO CORPORATION

4150 EAST 56TH ST. • CLEVELAND 5, OHIO